

Appendix K: Traffic and Parking Analysis

K.1 - MARINA PARK TPO TRAFFIC ANALYSIS

MARINA PARK TPO

Traffic Analysis

September 2009



MARINA PARK TPO TRAFFIC ANALYSIS

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MARINA PARK TPO

TRAFFIC ANALYSIS

This report summarizes an analysis performed for the proposed development of Marina Park in Newport Beach based on the City's Traffic Phasing Ordinance (TPO) methodology. In addition, this report summarizes the results of an analysis of cumulative conditions in compliance with California Environmental Quality Act (CEQA) requirements.

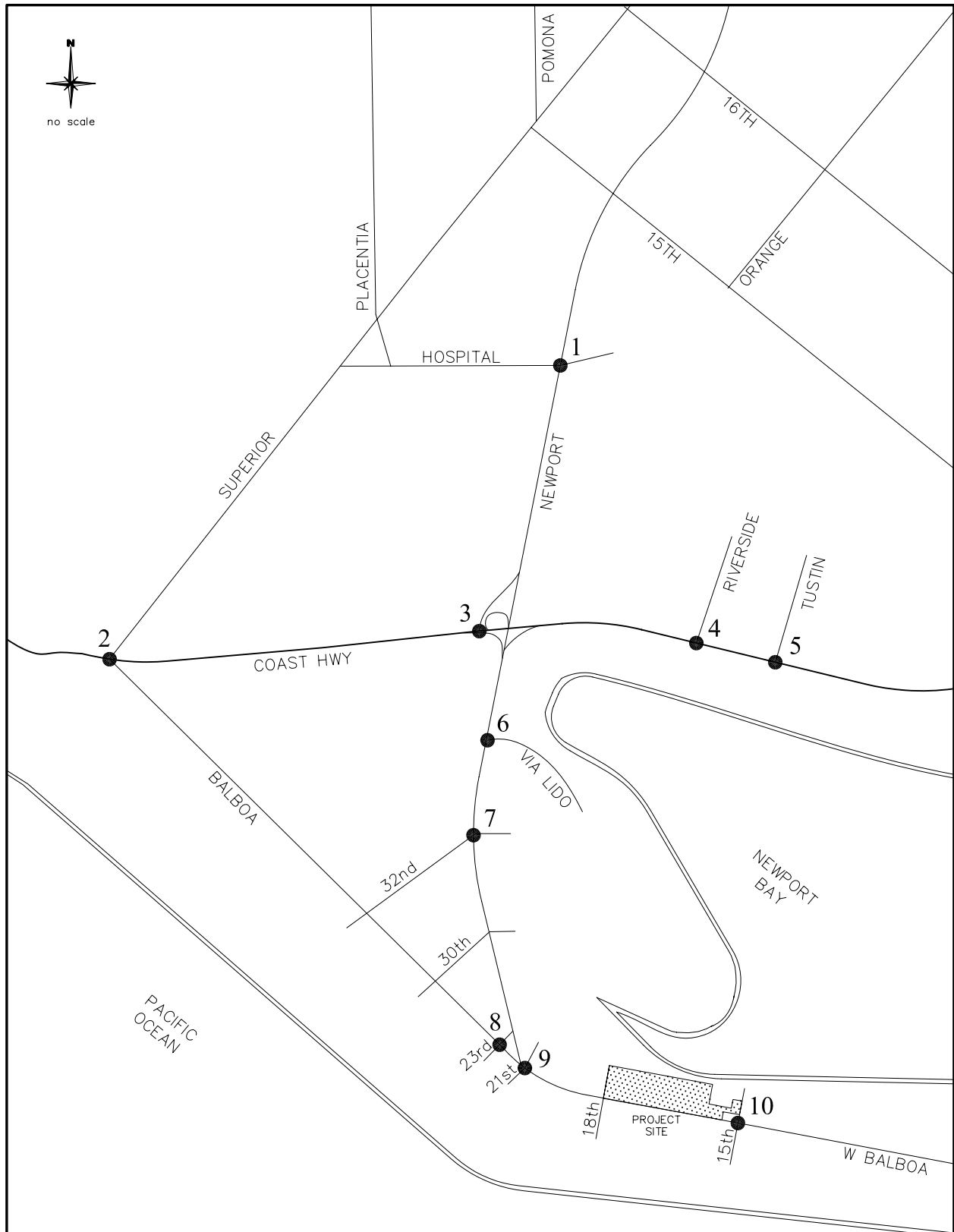
PROJECT DESCRIPTION

The proposed Marina Park project is located on the Bay side of Balboa Boulevard between 18th Street and 16th Street on the Balboa Peninsula in the City of Newport Beach. The approximately nine-acre site is currently developed with a 57-unit mobile home park, a community center, four tennis courts, a small playground, and the Girl Scout House. Adjacent to the project site between 16th Street and 15th Street is the existing American Legion Post 291, a small residential development, and a commercial building. Figure 1 illustrates the location of the proposed Marina Park project.

Phase 1 of the proposed Marina Park consists of removing the existing mobile homes (57 DU) and replacing them with 3.83 acres of sand. Approximately 112 metered parking spaces will be provided. Other than temporary restroom facilities, no other facilities will be provided. The existing community center, Girl Scout House, tennis courts, and small playground will remain. Figure 2 illustrates the proposed Phase 1 concept plan.

Phase 2 of the proposed Marina Park consists of replacing the 3.83 acres of sand in Phase 1 with 3.83 acres of turf. There will be no change in the amount of metered parking provided. Other than temporary restroom facilities, no other facilities will be provided. The existing community center, Girl Scout House, tennis courts, and small playground will remain. Figure 3 illustrates the proposed Phase 2 concept plan.

Phase 3 of the proposed Marina Park consists of a 10,200 square foot Community Center, an 11,200 square foot Sailing Center, recreational park uses, and a 23-berth non-commercial Visitor Marina. The Sailing Center will include a 54-seat café. A playground, two tennis courts, two half-court basketball courts, beach volleyball courts, and open lawn areas for picnicking and free play are proposed. New



Legend

● TPO study locations

Figure 1

PROJECT LOCATION

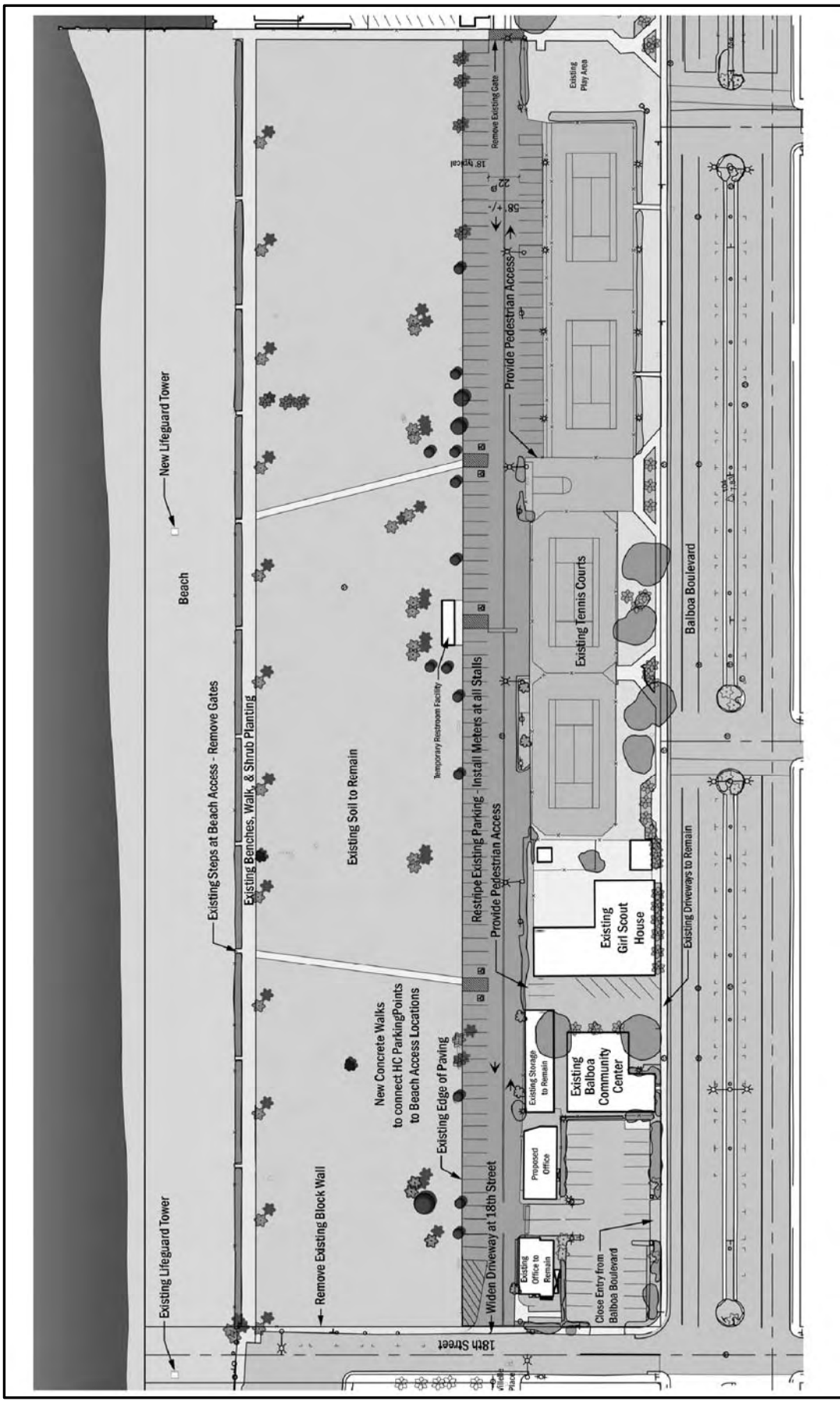


Figure 2
PROPOSED CONCEPT PLAN
- PHASE 1

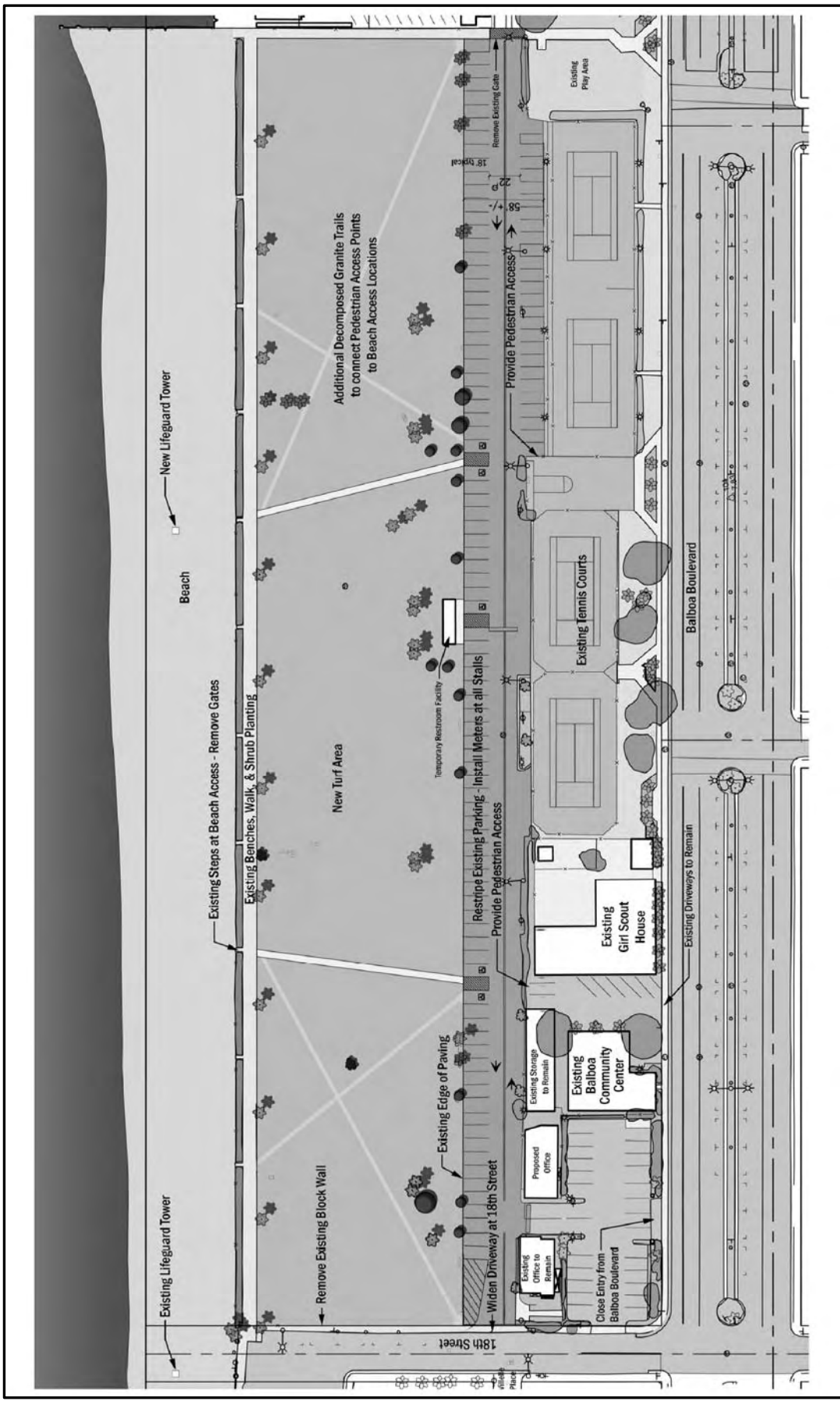


Figure 3
PROPOSED CONCEPT PLAN
- PHASE 2

docks and slips for sailing programs and expanded and improved beach access will be provided. The existing Girl Scout House will be relocated to the northwest corner of the project site. Figure 4 illustrates the proposed Phase 3 Marina Park concept plan.

TRIP GENERATION AND DISTRIBUTION

Phase 1 and Phase 2

Phase 1 will expand the lightly used existing sand area on the Bay side beach between 18th Street and 16th Street by 3.83 acres for a total of 5.99 acres. Phase 2 will simply replace the 3.83 acres of sand with 3.83 acres of turf. Neither Phase 1 nor Phase 2 will provide amenities such as sports facilities or playground equipment.

Trip rates for Phase 1 and Phase 2 of the proposed project were derived from Institute of Transportation Engineers (ITE) Trip Generation, Eighth Edition trip rates. The ITE Beach Park peak hour and daily rates per acre were applied to Phase 1 and Phase 2 of the proposed project. Credit for the trips currently being generated by the existing mobile home park were determined from ITE trip rates.

Table 1 summarizes the resulting trip generation for Phase 1 and Phase 2 of the proposed project. As this table shows, Phase 1 and Phase 2 result in a decrease in trips when compared with the trips generated by the existing mobile homes on the site. Since the existing mobile homes on the site generate more peak hour and daily trips than Phase 1 and Phase 2 of the proposed project, Phase 1 and Phase 2 will have no significant impact on the study area and no additional analysis of Phase 1 and Phase 2 is required.

Phase 3

Phase 3 of the proposed project consists of a 10,200 square foot Community Center, an 11,200 square foot Sailing Center, recreational park uses, and a 23-berth non-commercial Visitor Marina. The proposed Community Center will include three ground-floor classrooms for use by the sailing program or other City programs, and the second floor will provide administrative functions and a large room that accommodates up to 80 people for use as a large classroom, four small classrooms, or a banquet facility.

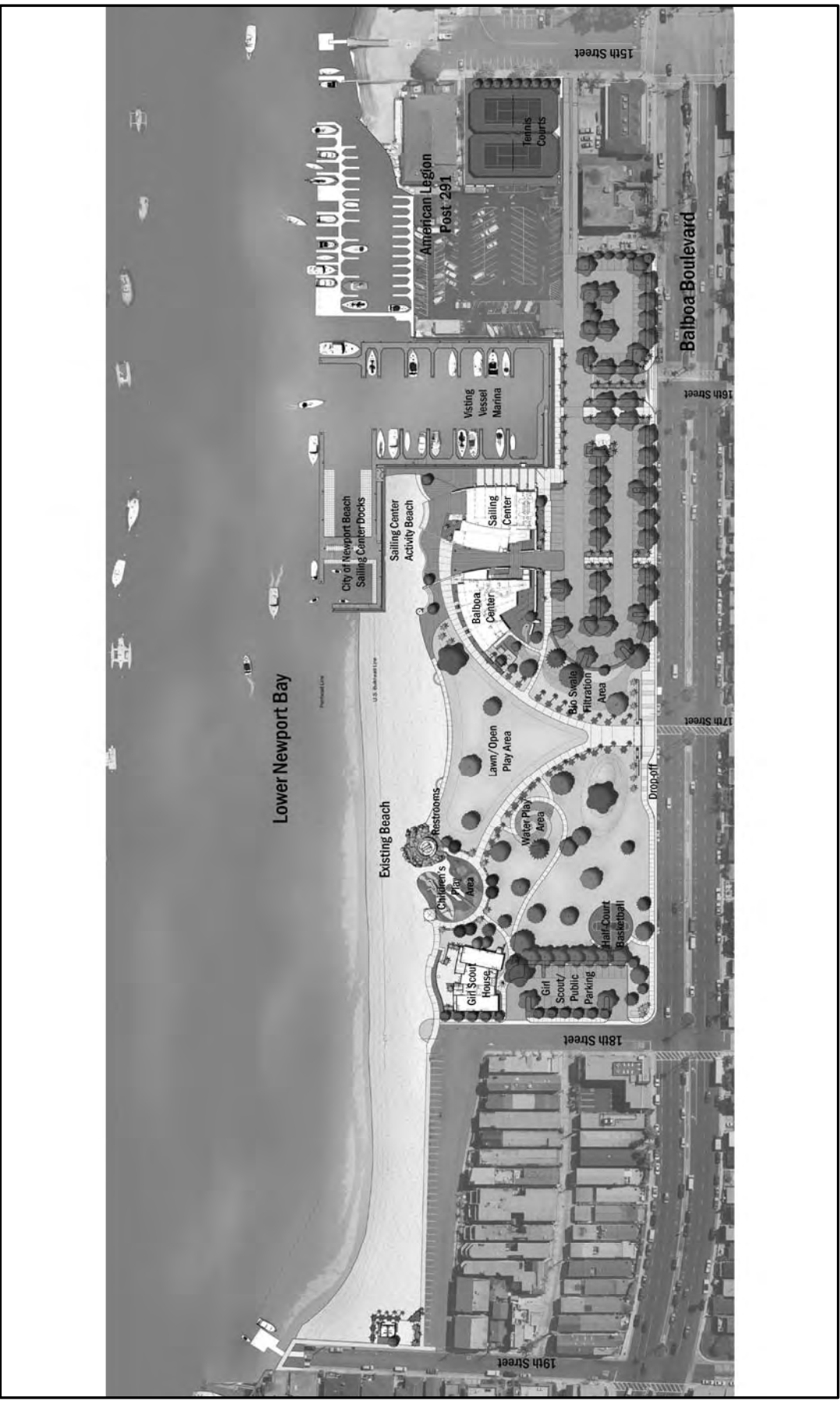


Figure 4
 PROPOSED CONCEPT PLAN
 - PHASE 3

Table 1								
TRIP GENERATION SUMMARY – PHASE 1 & PHASE 2								
LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR			ADT
		IN	OUT	TOTAL	IN	OUT	TOTAL	
TRIP RATES								
Beach Park (ITE 415)	Acre	.28	.20	.48	.38	.92	1.30	29.81
Mobile Home Park (ITE 240)	DU	.09	.35	.44	.37	.22	.59	4.99
TRIP GENERATION								
Proposed Phase 1 & Phase 2								
Park	5.99 Acres	2	1	3	2	6	8	179
Existing Use								
Mobile Home Park	57 DU	-5	-20	-25	-21	-13	-34	-285
NET NEW TRIPS		-3	-19	-22	-19	-7	-26	-106

The Sailing Center consists of a reception area, a medium sized meeting room, and a two-story gallery space. The second floor will include a 54-seat café and administrative offices. The Sailing Center will provide indoor space for storage and maintenance of the boats and equipment used in the sailing program.

The Visitor Marina includes 21 40-foot long berths and two 50-foot long berths for use by the public for short-term visiting non-commercial vessels plus a 200 foot long dock. Full hook-ups will be provided to all berths. The marina will be fenced and controlled security access provided at the southeastern corner. A marina control building containing an office, restrooms, and washing machines will be provided adjacent to the marina entry point.

Amenities in the park will include picnic tables, restrooms, showers, play areas, half-court basketball courts, benches, public beach and access to the water. Tennis courts are located adjacent to the American Legion.

The entire site is currently developed with a 57-unit mobile home park, community center, Girl Scout House, tennis courts, and playground which are generating peak hour and daily traffic. Credit for the trips currently being generated by the existing mobile home park, community center, tennis courts and playground were determined from ITE trip rates.

The Girl Scout House will be relocated from its current location to the northwest corner of the site. No changes in the trips generated by the Girl Scout House are expected.

Trip generation rates for Phase 3 of the proposed project were derived from peak hour and daily trip rates contained in ITE Trip Generation, Eighth Edition. A combined rate that consists of the ITE Beach Park AM and PM peak hour rates per acre and an average of the ITE City Park and Beach Park daily rates per acre was applied to the park uses. ITE's Recreational Community Center trip rates were applied to the proposed Community Center and Sailing Center, which includes a 54-seat café. These rates and the resulting trips for Phase 3 of the project are summarized in Table 2.

The existing trips from the mobile home park, the tennis courts, and the playground were subtracted from the proposed trip generation to produce the net new trips for the project. As the trip generation table indicates, the proposed project results in a net increase of 261 trips daily. During the AM

Table 2								
TRIP GENERATION SUMMARY - PHASE 3								
LAND USE	UNITS	AM PEAK HOUR			PM PEAK HOUR			ADT
		IN	OUT	TOTAL	IN	OUT	TOTAL	
TRIP RATES								
Park ¹	Acre	.28	.20	.48	.38	.92	1.30	15.70
Recreational Community Center (ITE 495) ²	TSF	.99	.63	1.62	.48	1.16	1.64	22.88
Marina (ITE 420)	Berth	.03	.05	.08	.11	.08	.19	2.96
Mobile Home Park (ITE 240)	DU	.09	.35	.44	.37	.22	.59	4.99
TRIP GENERATION								
Proposed Project								
Park	4.89 Acres	1	1	2	2	4	6	77
Community Ctr/Sailing Ctr/Cafe	21.3 TSF	21	13	34	10	25	35	487
Visitor Marina	23 Berths	1	1	2	3	2	5	68
Sub-Total		23	15	38	15	31	46	632
Existing Use								
Mobile Home Park	57 DU	-5	-20	-25	-21	-13	-34	-285
Park	1.2 Acres	0	0	0	0	-1	-1	-19
Community Ctr	2.9 TSF	-3	-2	-5	-1	-4	-5	-67
NET NEW TRIPS		15	-7	8	-7	13	6	261
Notes:								
¹ Park AM and PM trip rates from ITE Beach Park (415) rate/acre and ADT rate averaged from City (411) and Beach (415) Park ADT rate/acre.								
² ITE Recreational Community Center (495) trip rates applied to Community Center, Sailing Center, and Café.								
The Girl Scout House will be relocated on-site and results in no net change in project trips.								

peak hour there is a net increase of eight trips generated by Phase 3 of the project compared with the trip generation of the existing uses on the site. During the PM peak hour Phase 3 of the proposed project generates six new trips compared with the trip generation of the existing uses on the site.

Trip distribution of Phase 3 project-generated traffic onto the surrounding circulation system was determined from observed travel patterns in the vicinity of the project site as well as from locations and levels of development in relation to the subject property. A large portion of trips generated by Phase 3 of the project are estimated to originate within the City of Newport Beach. Approximately 35 percent of Phase 3 project trips are oriented toward the areas south of Coast Highway, including the Balboa Peninsula area. The remaining 65 percent of Phase 3 project traffic is distributed along Coast Highway and Newport Boulevard. The general distribution for Phase 3 of the proposed development is illustrated in Figure 5. Phase 3 project-generated trips were distributed to the circulation system according to these distribution patterns. The AM and PM peak hour trips for Phase 3 of the proposed development are illustrated in Appendix A.

TPO TRAFFIC IMPACTS

The City of Newport Beach identified ten intersections for analysis to determine the impact of the proposed Marina Park development. These intersections are:

Newport Boulevard and Hospital Road
Balboa Boulevard/Superior Avenue and Coast Highway
Newport Boulevard and Coast Highway
Riverside Avenue and Coast Highway
Tustin Avenue and Coast Highway
Newport Boulevard and Via Lido
Newport Boulevard and 32nd Street
23rd Street and Balboa Boulevard
21st Street and Balboa Boulevard
15th Street and Balboa Boulevard

Existing peak hour intersection volumes for the study locations were provided by City Staff (existing peak hour volumes are illustrated in Appendix A) with the exceptions of 23rd Street at Balboa Boulevard, 21st Street at Balboa Boulevard, and 15th Street at Balboa Boulevard, which were counted by

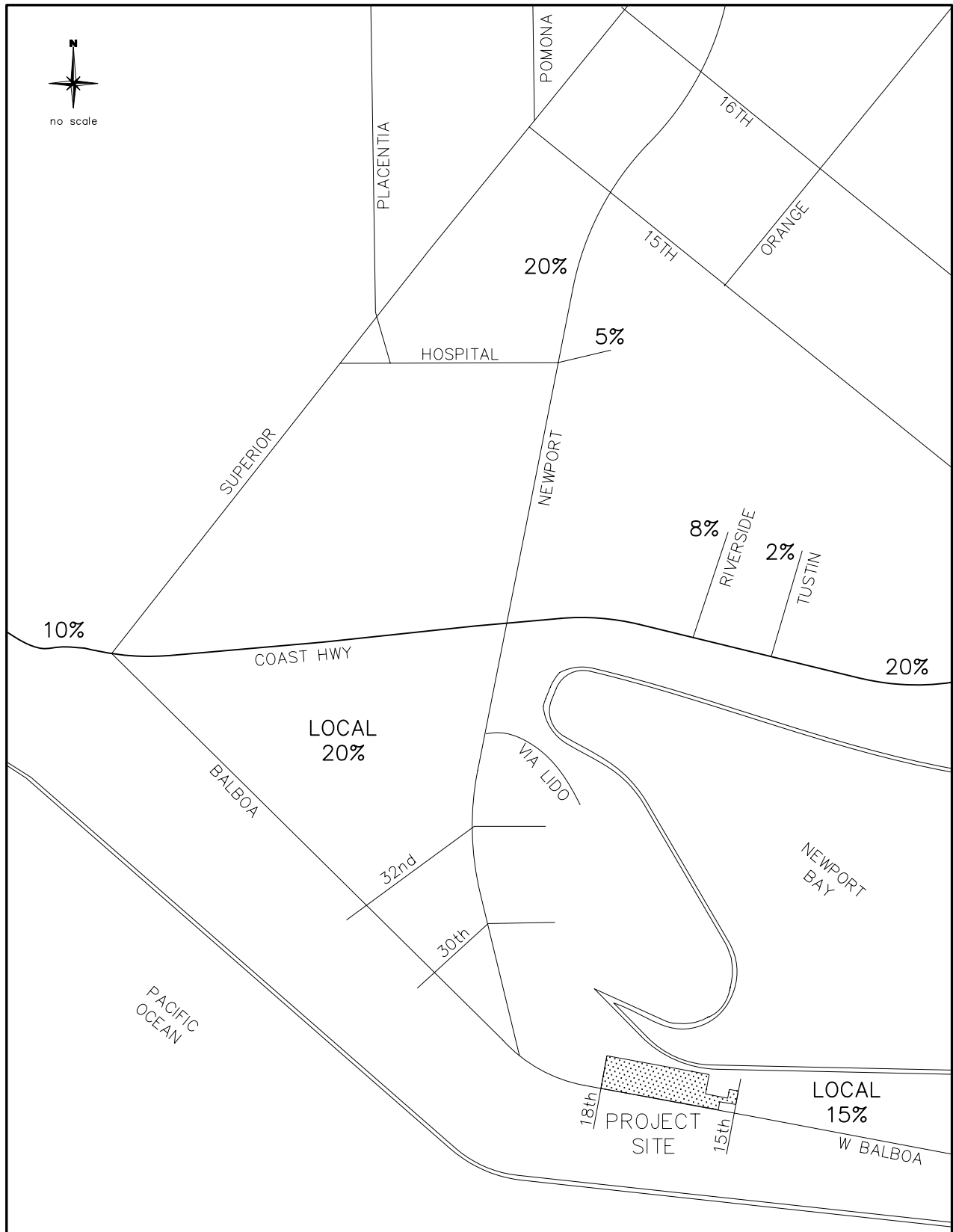


Figure 5
GENERAL PROJECT PHASE 3 DISTRIBUTION

Traffic Data Services, Inc. in September 2009. The peak hour data provided by the City was collected during the non-peak season in 2006, 2007, and 2008. Existing intersection levels of service are based on intersection capacity utilization (ICU) values. The ICU values are a means of presenting the volume to capacity ratios, with a V/C ratio of .90 representing the upper threshold for an acceptable level of service (LOS “D”) in the City of Newport Beach. The City methodology calculates the ICU value to three decimal places, and then reports the resulting ICU value rounded to two decimal places.

Existing ICU values for the study intersections assuming existing lane configurations are summarized in Table 3 (actual ICU calculation sheets are included in Appendix B). As this table shows, the study intersections are currently operating at LOS “D” or better during the AM and PM peak hours. These ICU values represent the non-peak season conditions.

Sample mid-block counts were collected to determine the seasonal increase in Summer traffic volumes for this area of Newport Beach. Counts collected on Newport Boulevard at 32nd Street and on Balboa Boulevard at 18th Street in early June 2008 (non-peak season) and late June 2008 (peak Summer season) indicate an average increase of 18 percent in the daily traffic volume during the Summer (count data is included in Appendix D). During the peak hours, the Summer increase averages 17 percent over the non-peak season volume during the AM peak hour and 16 percent during the PM peak hour. Existing peak hour volumes at the study intersections were increased to Summer conditions (illustrated in Appendix A), and the resulting Summer season ICU values are summarized in Table 4.

An ambient growth rate of 1.0 percent per year was added to the existing volumes along Newport Boulevard north of Coast Highway and along Coast Highway. Construction of Phase 3 of the project is assumed to be complete in 2010; therefore, the study year is 2011. Traffic generated by approved projects in the study area, obtained from City Staff, were added to the existing peak hour volumes to obtain year 2011 background peak hour volumes for the intersections prior to the addition of project-generated traffic (illustrated in Appendix A). Table 5 summarizes the approved projects included in this analysis.

Background-plus-project Phase 3 peak hour volumes were obtained by adding the Phase 3 project-generated peak hour intersection volumes presented above to the existing-plus-regional growth-plus-approved projects peak hour volumes. Background-plus-project Phase 3 peak hour volumes are illustrated in Appendix A.

Table 3		
EXISTING ICU ANALYSIS SUMMARY – NON-PEAK SEASON		
INTERSECTION	AM	PM
1. Newport & Hospital	.59	.64
2. Balboa/Superior & Coast Hyw	.68	.72
3. Newport & Coast Hwy	.77	.68
4. Riverside & Coast Hwy	.70	.81
5. Tustin & Coast Hwy	.67	.58
6. Newport & Via Lido	.47	.43
7. Newport & 32nd	.48	.66
8. 23rd & Balboa	.11	.12
9. 21st & Balboa	.23	.32
10. Balboa & 15th	.46	.33
Level of service ranges: .00 - .60 A		
	.61 - .70 B	
	.71 - .80 C	
	.81 - .90 D	
	.91 – 1.00 E	
	Above 1.00 F	

Table 4		
EXISTING ICU ANALYSIS SUMMARY – SUMMER SEASON		
INTERSECTION	AM	PM
1. Newport & Hospital	.66	.70
2. Balboa/Superior & Coast Hyw	.79	.82
3. Newport & Coast Hwy	.90	.77
4. Riverside & Coast Hwy	.80	.88
5. Tustin & Coast Hwy	.78	.65
6. Newport & Via Lido	.54	.49
7. Newport & 32nd	.56	.74
8. 23rd & Balboa	.13	.14
9. 21st & Balboa	.28	.36
10. Balboa & 15th	.54	.38
Level of service ranges: .00 - .60 A		
	.61 - .70 B	
	.71 - .80 C	
	.81 - .90 D	
	.91 – 1.00 E	
	Above 1.00 F	

Table 5	
APPROVED PROJECTS SUMMARY	
LOCATION	PERCENT COMPLETE
Fashion Island Expansion	40
Temple Bat Yahm Expansion	65
CIOSA – Irvine Project	91
Newport Dunes	0
1401 Dove Street	0
1901 Westcliff Surgical Center	0
Hoag Hospital Phase III	0
Birch Medical Office	0
St Mark Presbyterian Church	77
Corporate Plaza West	0
Mariner’s Mile Gateway	0
Land Rover NB Service Center	0
Our Lady Queen of Angels Church Expansion	0
2300 Newport Boulevard	0
Newport Executive Court	0
Hoag Health Center	0
North Newport Center	0
Santa Barbara Condo	0

The TPO analysis consists of a one percent analysis and an ICU analysis at each study intersection. The one percent analysis compares the proposed Phase 3 project traffic with projected background peak hour volumes. To pass the one percent analysis, peak hour traffic from Phase 3 of the proposed project must be less than one percent of the projected background peak hour traffic on each leg of the intersection. If Phase 3 of the proposed project passes the one percent analysis, then the ICU analysis is not required and no further analysis is necessary. If Phase 3 of the proposed project does not pass the one percent analysis, then the ICU analysis must be performed for the intersection which fails to pass the one percent test.

Table 6 summarizes the results of the non-peak season one percent analysis for Phase 3 of the project (the one percent analysis sheets are included in Appendix C). As this table indicates, Phase 3 of the proposed project does not pass the one percent analysis at two study intersections during the AM and PM peak hour; therefore, an ICU analysis is required for the intersections of 23rd Street at Balboa Boulevard and 21st Street at Balboa Boulevard. The non-peak season volumes represent the worst-case one percent analysis since the Summer season volumes increase the background level against which the project trips are compared. If Phase 3 of the project passes the one percent analysis at a location under non-peak season conditions, then Phase 3 of the project will pass the one percent analysis at that location under Summer season conditions.

An ICU analysis was performed for the two intersections which did not pass the one percent test. Existing lane configurations were assumed, and a capacity of 1,600 vph per lane with no clearance factor was utilized. Table 7 summarizes the existing, existing-plus-project Phase 3, background, and background-plus-project Phase 3 ICU values during the AM and PM peak hours under non-peak season and Summer season conditions (actual ICU calculation sheets are included in Appendix B).

As the ICU summary table indicates, Phase 3 of the project will have no marginal impact on the intersections of 23rd Street at Balboa Boulevard and 21st Street at Balboa Boulevard which will operate at LOS “A” during the AM and PM peak hours under non-peak season and Summer season conditions. Phase 3 of the project has no significant impact on the study intersections, and no mitigation is required.

CUMULATIVE CONDITIONS ANALYSIS

City Staff provided a list of 12 known but not approved projects for use in a cumulative conditions analysis. These cumulative projects are summarized in Table 8. Trip generation and distribution for each

Table 6

SUMMARY OF PHASE 3 ONE PERCENT ANALYSIS – NON-PEAK SEASON

INTERSECTION	AM PEAK HOUR PROJECT PHASE 3 VOLUMES				LESS THAN 1% OF PEAK HOUR VOLUMES
	NB	SB	EB	WB	
1. Newport & Hospital	0	3	0	1	Yes
2. Balboa/Superior & Coast Hwy	0	0	1	0	Yes
3. Newport & Coast Hwy	0	0	0	5	Yes
4. Riverside & Coast Hwy	0	1	0	3	Yes
5. Tustin & Coast Hwy	0	0	0	3	Yes
6. Newport & Via Lido	0	9	0	0	Yes
7. Newport & 32nd	0	9	1	0	Yes
8. Balboa & 23rd	0	0	3	0	No
9. Balboa & 21st	0	0	13	0	No
10. 15th & Balboa	0	0	0	2	Yes
INTERSECTION	PM PEAK HOUR PROJECT PHASE 3 VOLUMES				LESS THAN 1% OF PEAK HOUR VOLUMES
	NB	SB	EB	WB	
1. Newport & Hospital	4	0	0	0	Yes
2. Balboa/Superior & Coast Hwy	1	0	0	0	Yes
3. Newport & Coast Hwy	0	0	0	0	Yes
4. Riverside & Coast Hwy	0	0	4	0	Yes
5. Tustin & Coast Hwy	0	0	3	0	Yes
6. Newport & Via Lido	7	0	0	0	Yes
7. Newport & 32nd	8	0	0	0	Yes
8. Balboa & 23rd	0	0	0	3	No
9. Balboa & 21st	0	0	0	11	No
10. 15th & Balboa	0	0	2	0	Yes

Table 7								
ICU ANALYSIS SUMMARY – PHASE 3								
INTERSECTION	EXISTING		EXISTING + PROJECT PHASE 3		BACKGROUND		BACKGROUND + PROJECT PHASE 3	
	AM	PM	AM	PM	AM	PM	AM	PM
<u>Non-Peak Season</u>								
8. 23rd & Balboa	.11	.12	.11	.12	.11	.13	.11	.13
9. 21st & Balboa	.23	.32	.23	.32	.23	.33	.23	.33
<u>Summer Season</u>								
8. 23rd & Balboa	.13	.14	.13	.14	.13	.15	.13	.15
9. 21st & Balboa	.28	.36	.28	.36	.29	.37	.29	.37
Level of service ranges: .00 - .60 A								
	.61 - .70 B							
	.71 - .80 C							
	.81 - .90 D							
	.91 – 1.00 E							
	Above 1.00 F							

Table 8		
CUMULATIVE PROJECTS SUMMARY		
PROJECT	LAND USE	AMOUNT
Newport Beach Country Club	Residential	5 DU
	Hotel	27 Rms
	Tennis/Golf Club	51.3 TSF
Mariner's Medical Arts	Medical Office Addition	12.2 TSF
City Hall & Park Development	City Hall	98.0 TSF
	Library Expansion	17.1 TSF
WPI-Newport, LLC	Office/Retail	54.2 TSF
Banning Ranch	Residential	1,375 DU
	Retail	75.0 TSF
	Hotel	75 Rms
Sunset Ridge Park	Park	13.7 Acre
Old Newport GPA	Medical Office	25.7 TSF
Marina Park	Public Marina/Park	10.5 Acre
Pres Office Building B	Office	16.7 TSF
Conexant/Koll	Residential	974 DU
AERIE	Condominium	6 DU
Newport Coast TAZ 1 – 4	Single Family Detached	954 DU
	Condominium/Townhouse	389 DU
	Multi-Family Attached	175 DU
DU – dwelling units		
Rms – Rooms		
TSF – thousand square feet		

cumulative project was also provided by City Staff. The peak hour cumulative intersection volumes were added to the background volumes presented earlier, and then Phase 3 project-generated traffic was added (see Appendix A). The previous non-peak season one percent analysis without cumulative volumes represents the worst-case one percent analysis since the addition of cumulative traffic to the background volumes increases the chances of a project passing the one percent analysis. If an intersection passes the one percent analysis prior to the addition of cumulative traffic, then the intersection will pass the one percent analysis with the addition of cumulative traffic and no further analysis is required at that location. Therefore, an ICU analysis for the two study intersections that did not pass the non-peak season one percent analysis was prepared.

The results of the cumulative ICU analysis are summarized in Table 9 (actual ICU calculation sheets are included in Appendix B). This table includes the non-peak season and Summer season ICU values. As the cumulative ICU table indicates, Phase 3 of the proposed project will have no significant impact on the study intersections which operate at LOS “A” during the AM and PM peak hours, and no mitigation is required.

PARKING ANALYSIS

The existing mobile home park parking lot will be restriped for Phase 1 and Phase 2 of the proposed project to provide approximately 112 metered parking spaces. Access to Phase 1 and Phase 2 parking will be provided via a driveway on 18th Street, as well as a connection to 15th Street at the east end of the parking lot.

Parking for Phase 3 of the proposed project will be provided in a main parking lot adjacent to the Community Center, Sailing Center, and Visitor Marina. This parking lot will provide approximately 127 spaces with two-way circulation throughout the lot. Access to the main parking lot will be provided at 16th Street and with a connection to 15th Street. Parking for the Girl Scout House will be provided in a 26-space lot at 18th Street. One-way circulation should be provided in the 18th Street parking lot with traffic entering the south driveway and exiting the north driveway.

The amount of parking required for Phase 3 of the proposed project was determined from ITE parking rates modified to suit this specific development. The parking rate applied to the Community Center is the ITE Recreational Community Center parking rate; however, the rate applied to the Sailing Center is reduced from the ITE Recreational Community Center rate since large areas of the sailing center

Table 9

CUMULATIVE ICU ANALYSIS SUMMARY – PHASE 3

INTERSECTION	EXISTING		BACKGROUND		BACKGROUND + CUMULATIVE		BACKGROUND + CUMULATIVE + PROJECT PHASE 3	
	AM	PM	AM	PM	AM	PM	AM	PM
<u>Non-Peak Season</u>								
8. 23rd & Balboa	.11	.12	.11	.13	.12	.14	.12	.14
9. 21st & Balboa	.23	.32	.23	.33	.24	.33	.24	.33
<u>Summer Season</u>								
8. 23rd & Balboa	.13	.14	.13	.15	.14	.16	.14	.16
9. 21st & Balboa	.28	.36	.29	.37	.29	.38	.29	.38
Level of service ranges: .00 - .60 A								
.61 - .70 B								
.71 - .80 C								
.81 - .90 D								
.91 - 1.00 E								
Above 1.00 F								

are used for storage and maintenance. The parking rate for the Visitor Marina is the ITE Marina parking rate. These rates were developed in coordination with City staff.

Table 10 summarizes the required project parking for Phase 3. As this table indicates, the worst-case parking estimate for Phase 3 of the project is 144 spaces. Approximately 127 spaces will be provided in the main project parking lot under Phase 3, with another 26 spaces provided in the 18th Street parking lot for a total of 153 spaces.

The City is in the process of acquiring the existing SCE substation on Balboa Boulevard. The proposed Phase 3 site plan shows parking on the substation property. If the City is unsuccessful in obtaining the SCE property and cannot include that land in the parking lot, the parking lot will lose approximately 11 spaces resulting in an overall parking deficiency of two spaces under Phase 3 of the project.

The proposed Phase 3 parking lot is intended for the project only and not to provide additional beach parking. To prevent the parking lot from being used for beach parking under Phase 3, as a result reducing the amount of parking available for the project uses, signs indicating appropriate users and time limits and warning signs indicating enforcement will be posted throughout the parking lot. Periodic monitoring and surveying of parking lot users will be performed to determine if beach parking is encroaching on the project parking lot. If the warning signs are discouraging inappropriate users, then no further actions will be required. If the warning signs are being ignored, then a parking management plan with a more rigorous enforcement program will be developed.

Currently, on-street parking is allowed along Balboa Boulevard in the vicinity of the project site. Parking along the project frontage (i.e., the north side of Balboa Boulevard) is not metered; however, parking is not allowed on Monday mornings (8:30 AM – 12:30 PM) for street sweeping. Furthermore, parking is prohibited from 9:00 AM to 6:00 PM on Saturdays and Sundays from May through September, Memorial Day, Fourth of July, and Labor Day to provide an additional travel lane. These parking restrictions are assumed to remain in place with the development of the proposed project. Metered parking spaces are provided in the center median along Balboa Boulevard, and development of the project will have no affect on the operation of these spaces. A public parking lot with 24 spaces is currently located at the corner of 18th Street and Balboa Boulevard. This parking lot will be removed and replaced with a 26-space lot in the same location with development of Phase 3 of the project.

Table 10				
PARKING SUMMARY – PHASE 3				
LAND USE	SIZE	PARKING RATE	RATE SOURCE	SPACES REQUIRED
Girl Scout House	5.5 TSF	2.36 sp/TSF	1	13 sp
Community Ctr	10.2 TSF	6 sp/TSF	2	61 sp
Sailing Ctr	11.1 TSF	5 sp/TSF	3	56 sp
Visitor Marina	23 Berths	.59 sp/Berth	4	14 sp
TOTAL SPACES				144 sp
Parking rate sources:				
1 Existing 6 spaces plus 7 added for expansion of facility				
2 ITE Recreational Community Center (495) – includes Café and Park uses				
3 Modified ITE Recreational Community Center (495)				
4 ITE Marina (420)				

The number of on-street parking spaces along the project frontage will change with the development of Phase 3 of the proposed project. Development of the project site under Phase 3 will result in the widening of 18th Street north of Balboa Boulevard which will allow additional on-street parking (approximately eight spaces). In addition, development of Phase 3 of the project will result in the closure of driveways on Balboa Boulevard along the project frontage at the public parking lot on the corner of 18th Street, the existing community center, Girl Scout House, and SCE substation, and the removal of the 30 minute loading zone in front of the existing community center. With the closure of these driveways under Phase 3, an additional four on-street parking spaces may be available; although, a new on-street drop-off zone may reduce this number of new on-street parking spaces. On the other hand, the need to provide adequate sight distance east of the project driveway at 16th Street will require the removal of approximately 15 existing on-street parking spaces.

A left-turn pocket from eastbound Balboa Boulevard into the parking lot driveway at 16th Street should be provided to reduce entering Phase 3 project traffic from blocking through traffic on Balboa Boulevard. Although the Phase 3 hourly volume entering the parking lot driveway is not large (approximately 11 to 17 vehicles per hour), project trips are not spread out evenly throughout the hour, with the majority of vehicles entering the parking lot in the 10 to 15 minutes before classes begin. An 85-foot pocket, similar to existing left-turn pockets on Balboa Boulevard in the project vicinity, would result in the loss of approximately three existing parking spaces in the center median on Balboa Boulevard.

The overall change in on-street parking as a result of Phase 3 of the proposed project is a reduction of approximately six spaces between 18th Street and 15th Street.

SPECIAL ISSUES

Access to the main parking lot of Phase 3 of the proposed project will be provided by a driveway opposite 16th Street. A connection to 15th Street will also be available. A traffic signal exists at the intersection of 15th Street and Balboa Boulevard, approximately 400 feet east of the proposed driveway. Installation of a traffic signal is being considered at the proposed driveway opposite 16th Street. The need for a signal at this location was examined.

Satisfaction of Caltrans Peak Hour Signal Warrant (Figure F-1) requires a minimum of 100 peak hour trips on the side street approach. Phase 3 of the proposed project will generate 38 AM peak hour driveway trips, 15 of which are outbound, and 46 PM peak hour driveway trips, 31 of which are

outbound. Phase 3 of the project does not generate enough peak hour traffic to satisfy the signal warrant. Besides, the majority of outbound trips from Phase 3 of the project will be oriented toward the west; therefore, they will make a right turn out of the driveway and will experience very little benefit from a traffic signal at this location. Installation of a signal at the proposed project driveway is not recommended due to the low peak hour volumes expected and the close proximity to the existing signal at 15th Street.

Without a signal at the proposed project driveway, outbound vehicles will have to wait for gaps in Balboa Boulevard traffic to exit. Vehicles making a left turn from the parking lot will have the option of exiting the parking lot onto 15th Street and utilizing the existing signal at the intersection of 15th Street and Balboa Boulevard. However, relatively little Phase 3 project traffic (approximately 15 percent) is expected to be oriented toward the Balboa Peninsula east of the project site during the peak hours. Less than five peak hour trips would be added to the 15th Street/Balboa Boulevard intersection. The existing signal at 15th Street, which currently operates at LOS “A” during the AM and PM peak hours, can accommodate the addition of five peak hour trips.

Without a signal at the proposed project driveway on Balboa Boulevard, vehicles will have to wait for gaps in traffic on Balboa Boulevard. Balboa Boulevard is classified as a primary roadway in the vicinity of the project site. Parking and landscaping will need to be restricted east of the proposed project driveway so that a sight distance of 450 feet is provided per City Standard STD-110-L. This restriction will remove all on-street parking along the north side of Balboa Boulevard between 16th Street and 15th Street (approximately 15 spaces) under Phase 3.

CONCLUSIONS

Phase 1 and Phase 2 of the proposed project consists of replacing the existing mobile home park on the site with 3.83 acres of sand (Phase 1) or turf (Phase 2). No amenities other than temporary restroom facilities will be provided. The trips generated by the proposed sand or turf park are less than the trips generated by the existing mobile homes; therefore, Phase 1 and Phase 2 of the proposed project will have no significant impact on the study intersections. Approximately 112 metered parking spaces will be provided under Phase 1 and Phase 2.

Phase 3 of the proposed project, consisting of a 10,200 square foot community center, an 11,200 square foot sailing center, park uses, a 23-berth non-commercial visitor marina, and re-located on-site

Girl Scout House, will generate eight new AM peak hour trips, six new PM peak hour trips, and 261 new daily trips. The marginal impact of Phase 3 project traffic on the street system was determined at ten intersections in the vicinity. Two of the ten intersections did not pass the City's one percent analysis; however, Phase 3 of the project had no marginal impact on the ICU values at these two intersections, which will continue to operate at level of service (LOS) "A" during the AM and PM peak hours under non-peak season and Summer season conditions. Consequently, Phase 3 of the proposed project has no significant impact on the study intersections, and no additional intersection improvements are required.

The impact of traffic from known but not approved projects was included in a cumulative conditions analysis. Under cumulative non-peak season and Summer season conditions, Phase 3 of the project had no marginal impact during the AM or PM peak hour on the ICU values at the two intersections that did not pass the one percent analysis. Therefore, Phase 3 of the proposed project has no significant impact on the study intersections under cumulative conditions, and no intersection mitigation measures are required.

A review of the proposed parking reveals that the 153 spaces provided on-site are adequate to satisfy Phase 3 of the project's demand. However, some monitoring of the parking lot as outlined in a parking management plan will be required to ensure that the parking there is limited to legitimate Marina Park Phase 3 users.

APPENDIX A

PEAK HOUR INTERSECTION VOLUMES

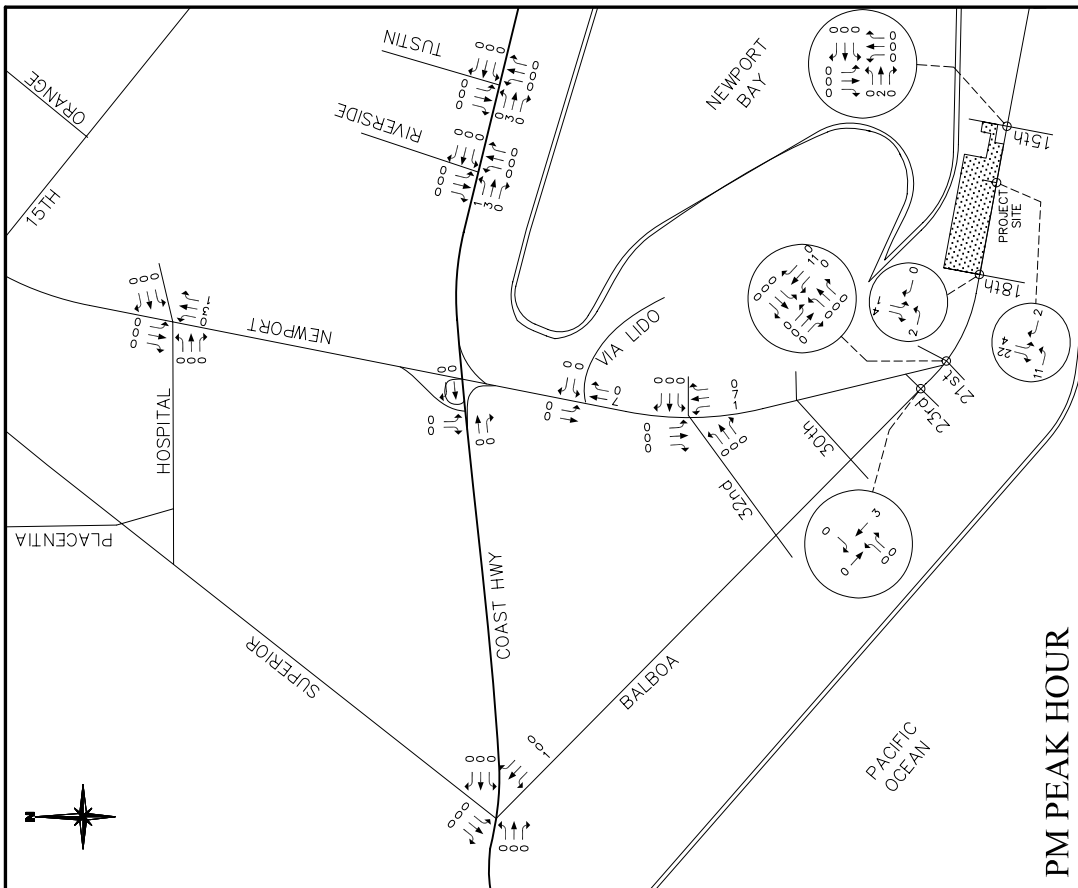
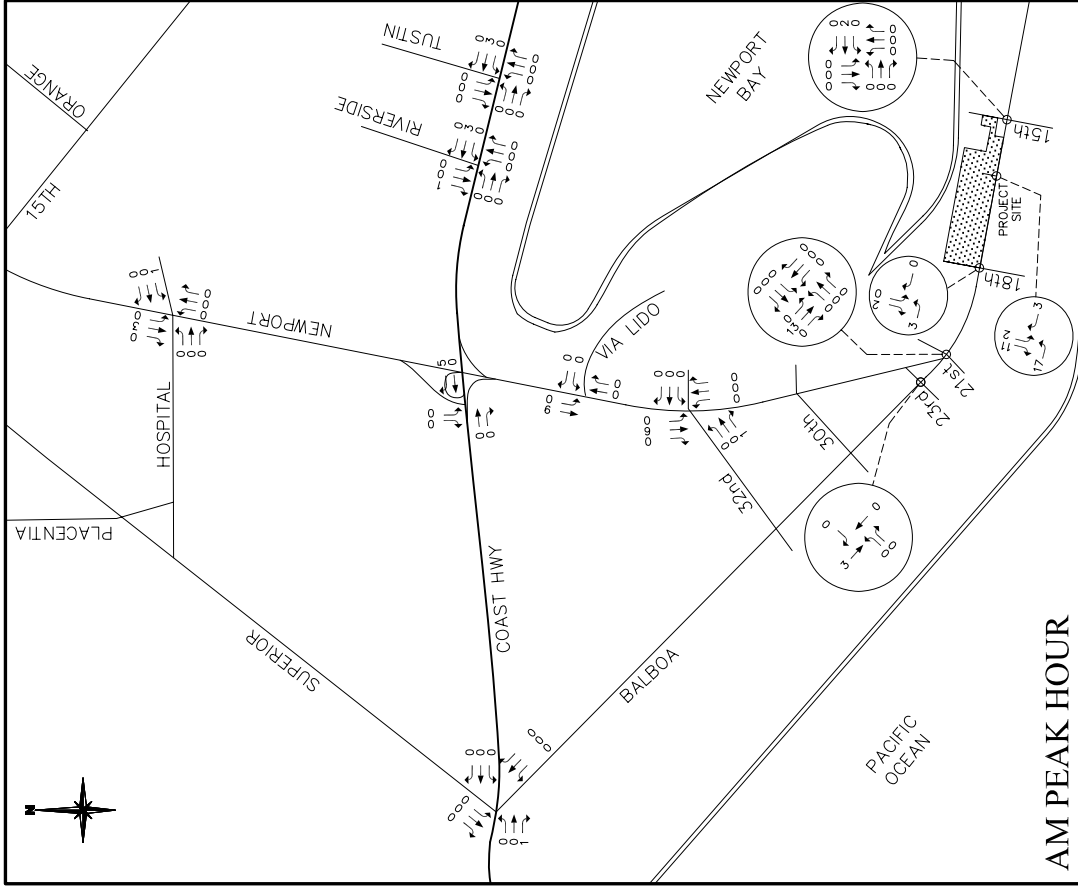


Figure A-1
PEAK HOUR PROJECT TRIPS
- PHASE 3

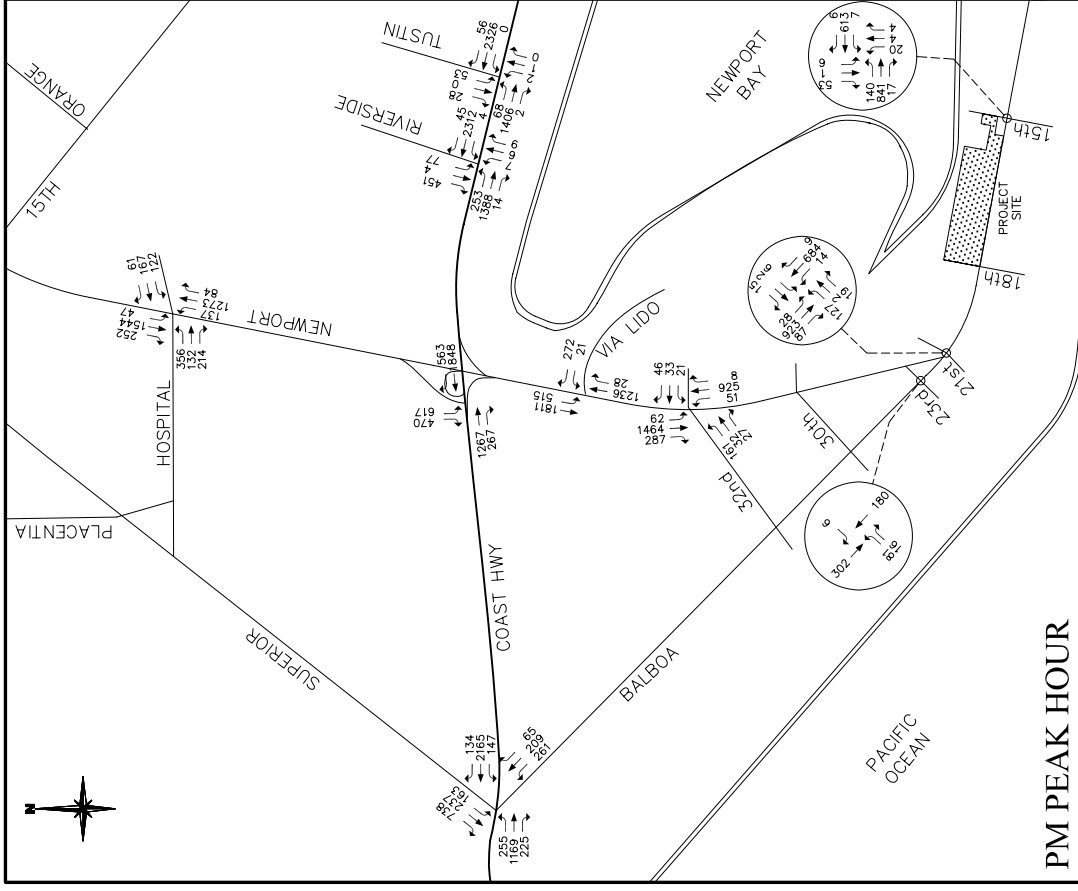
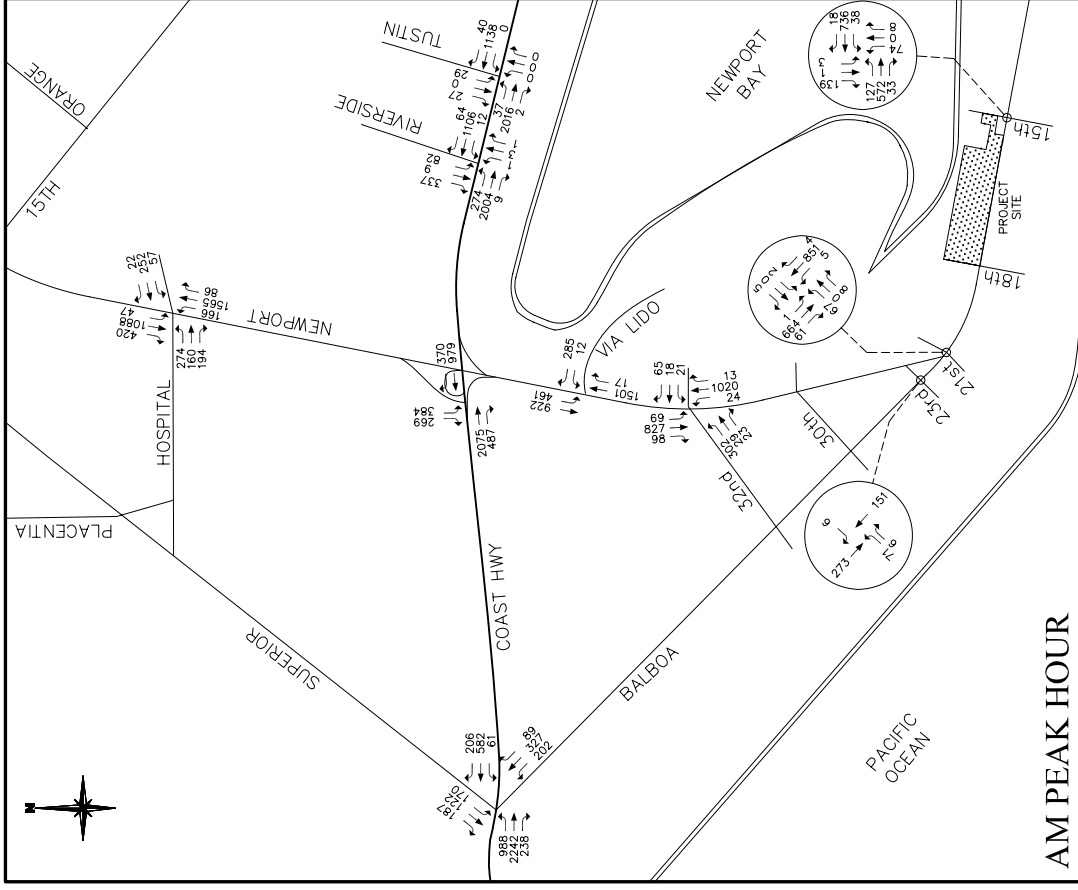


Figure A-2
EXISTING PEAK HOUR VOLUMES
- NON-PEAK SEASON

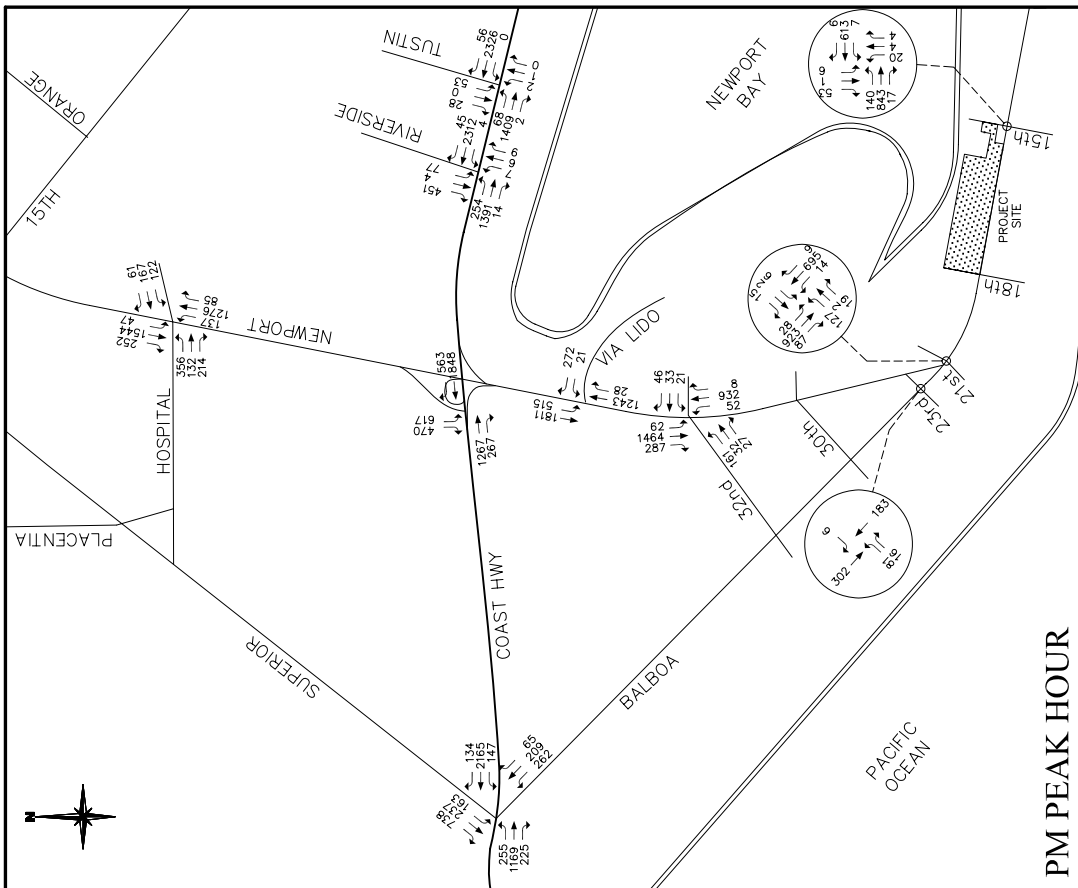
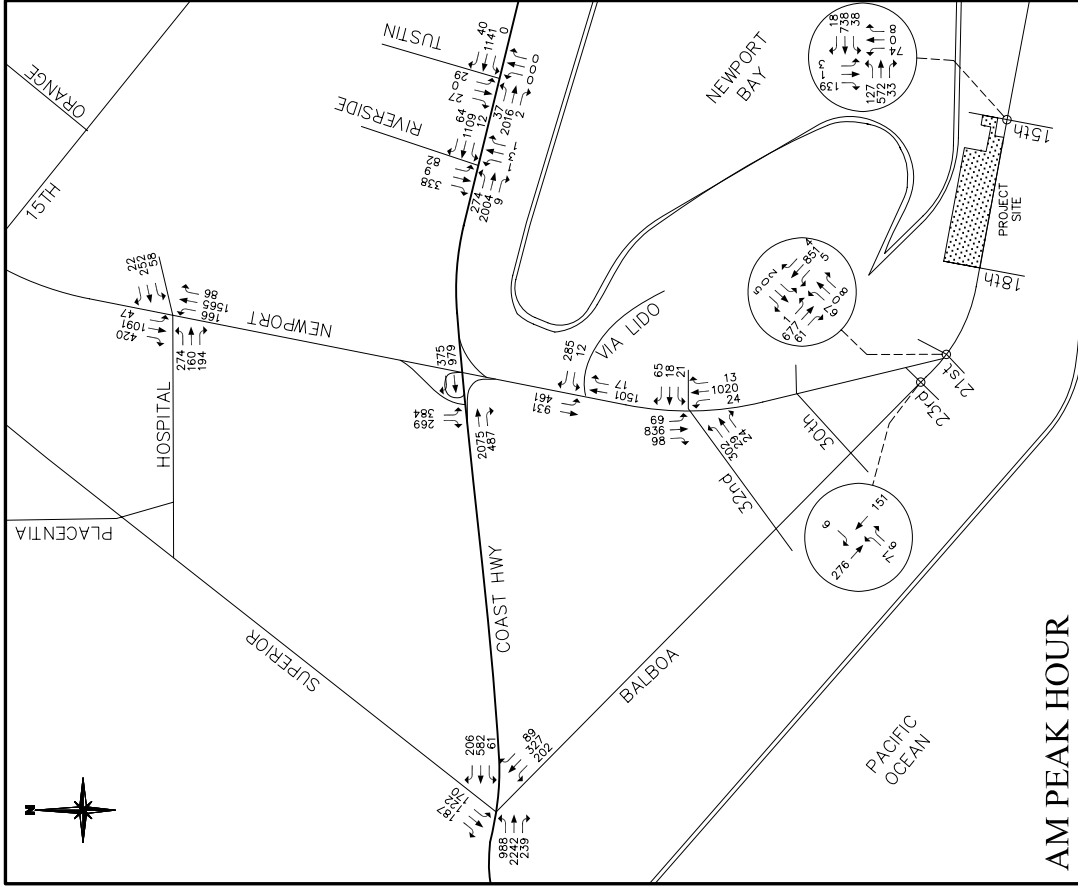


Figure A-3
EXISTING + PROJECT PHASE 3
PEAK HOUR VOLUMES
- NON-PEAK SEASON

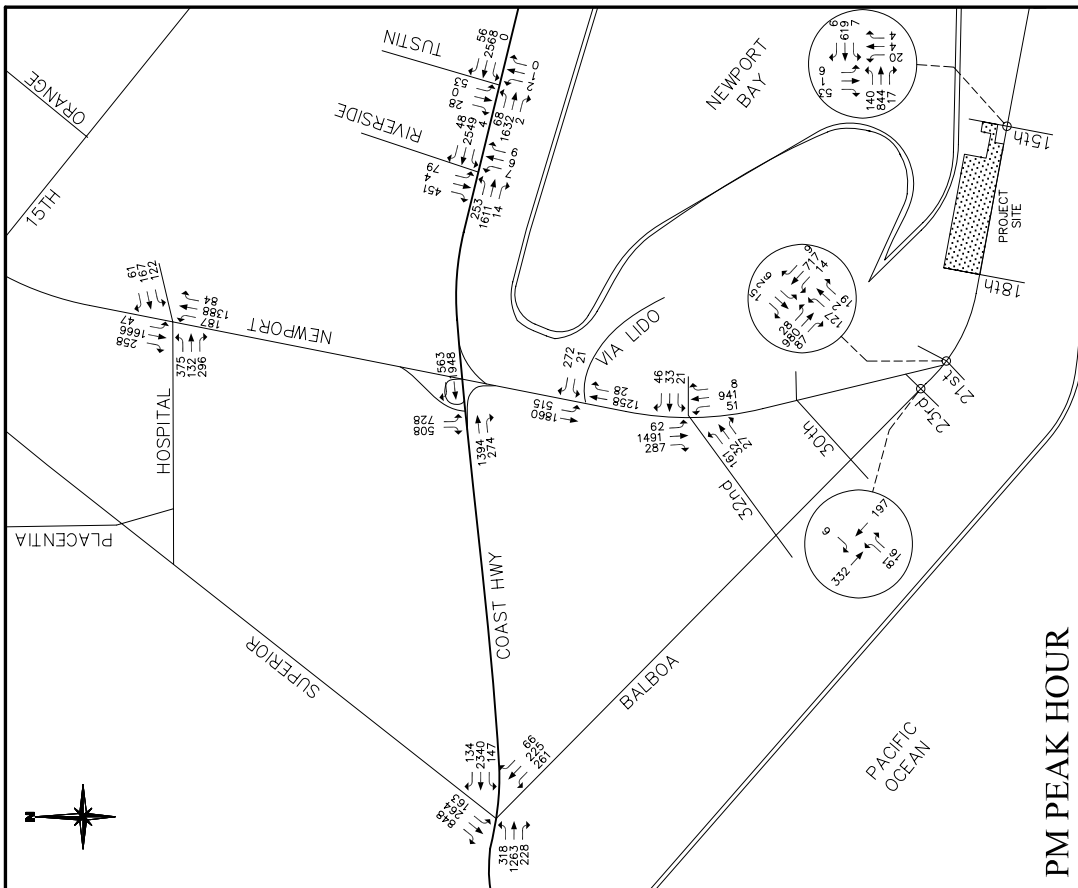
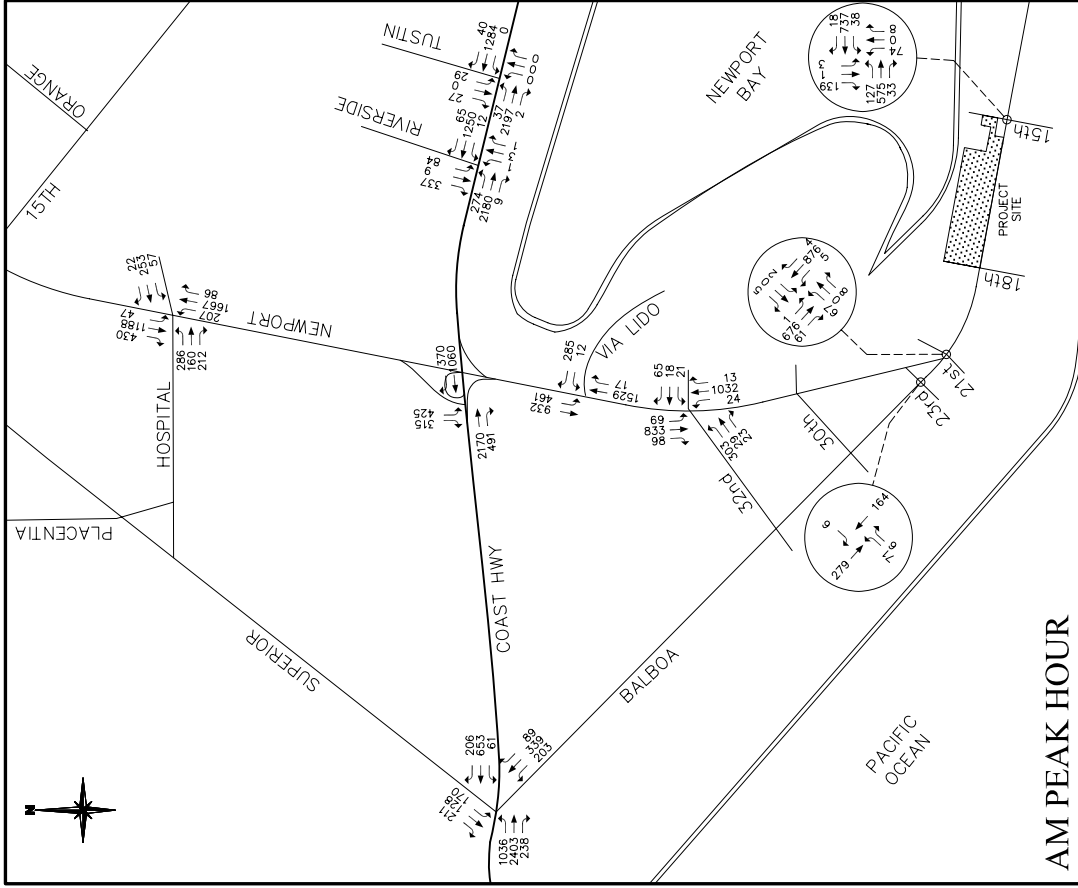


Figure A-4
EXISTING + REGIONAL GROWTH + APPROVED
PEAK HOUR VOLUMES
- NON-PEAK SEASON

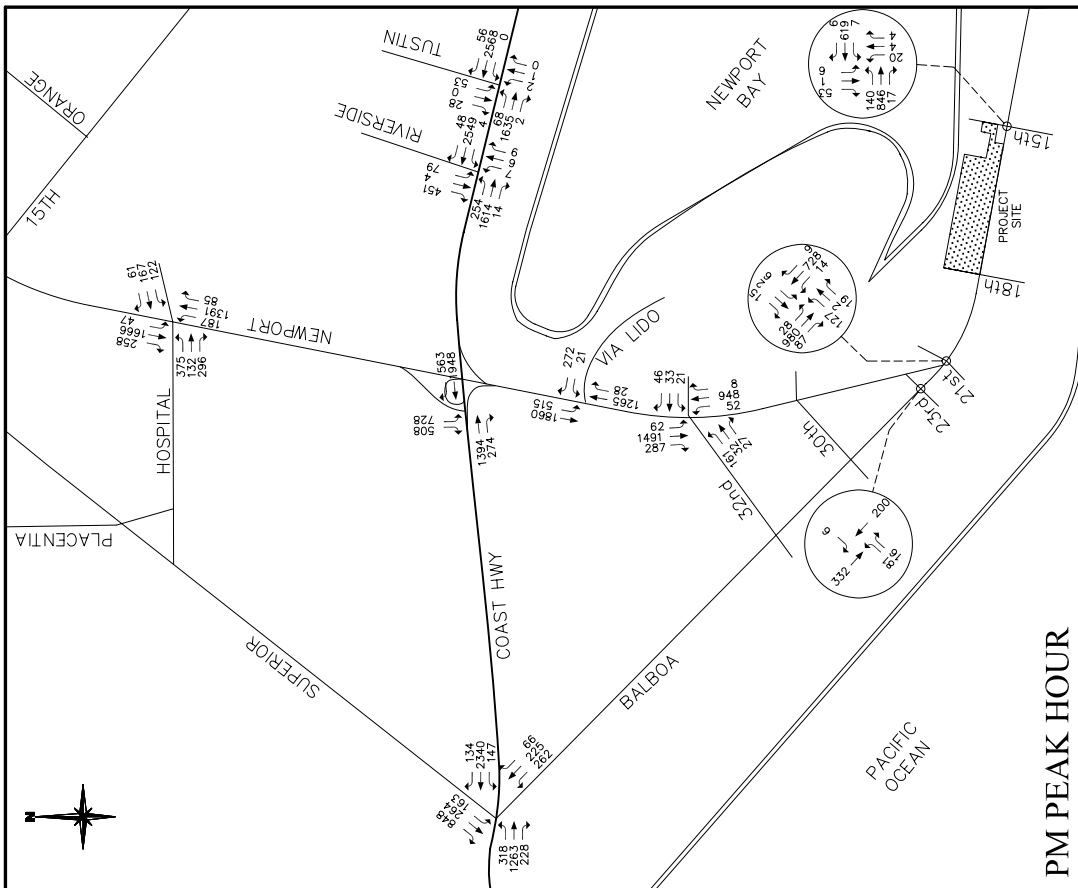
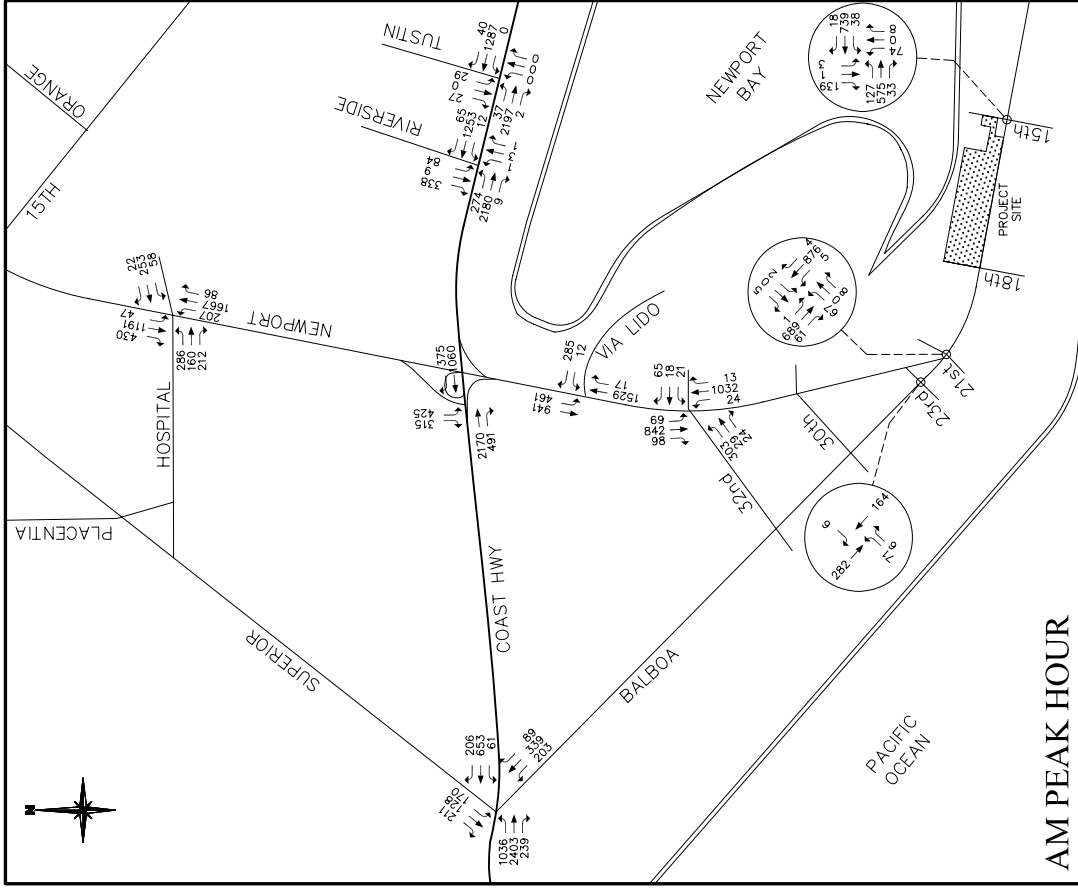


Figure A-5
 EXISTING + GROWTH + APPROVED
 + PROJECT PHASE 3 PEAK HOUR VOLUMES
 - NON-PEAK SEASON

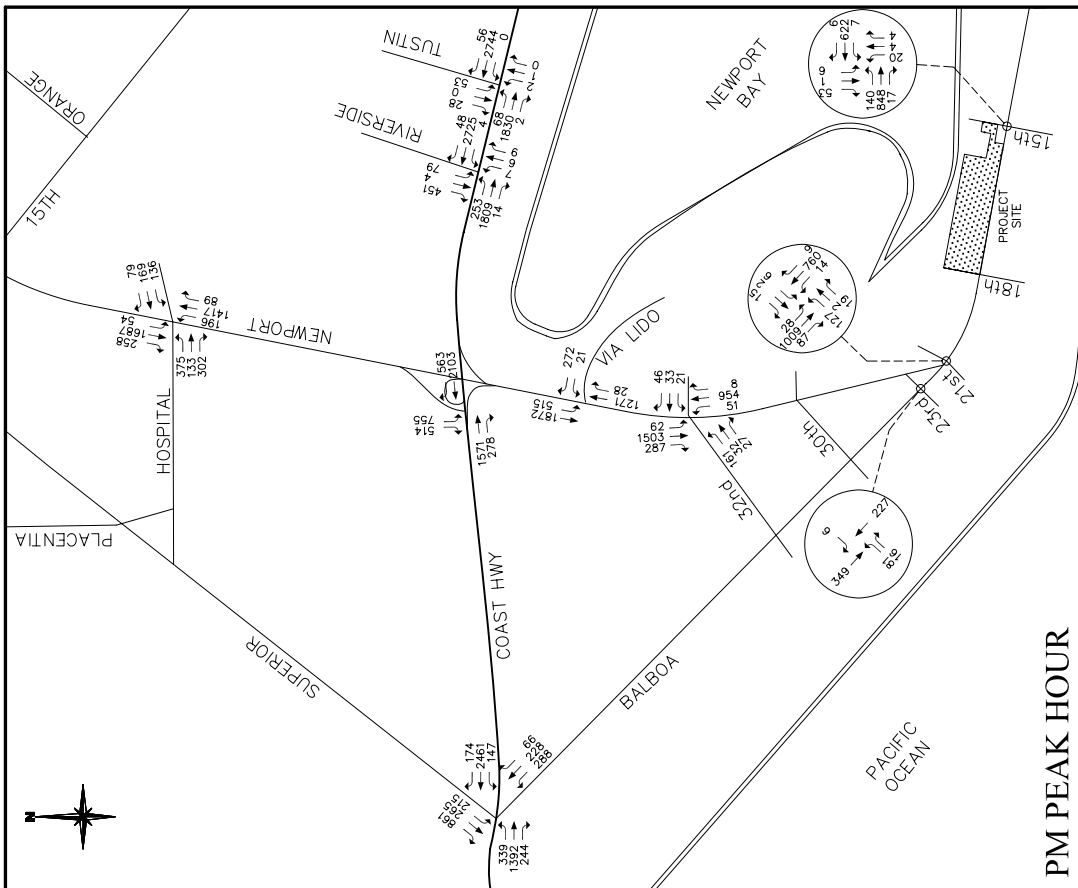
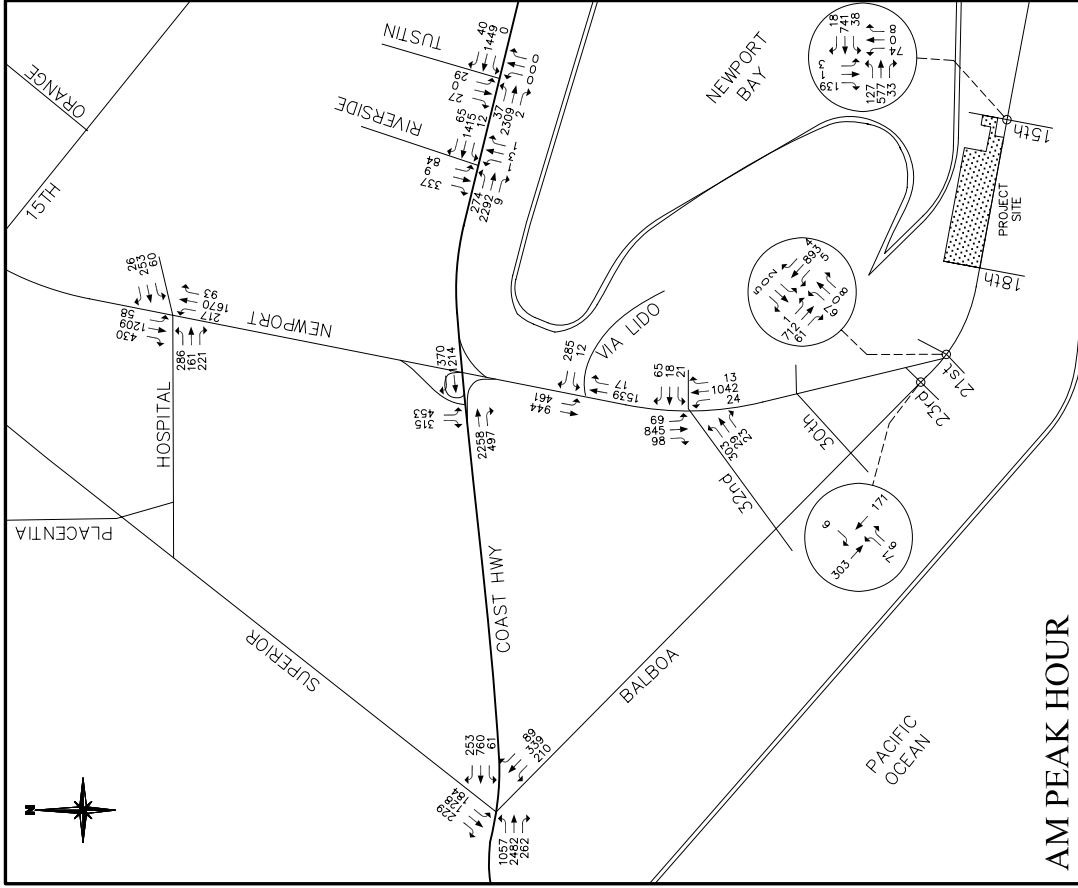


Figure A-6
 EXISTING + GROWTH + APPROVED + CUMULATIVE
 PEAK HOUR VOLUMES
 - NON-PEAK SEASON

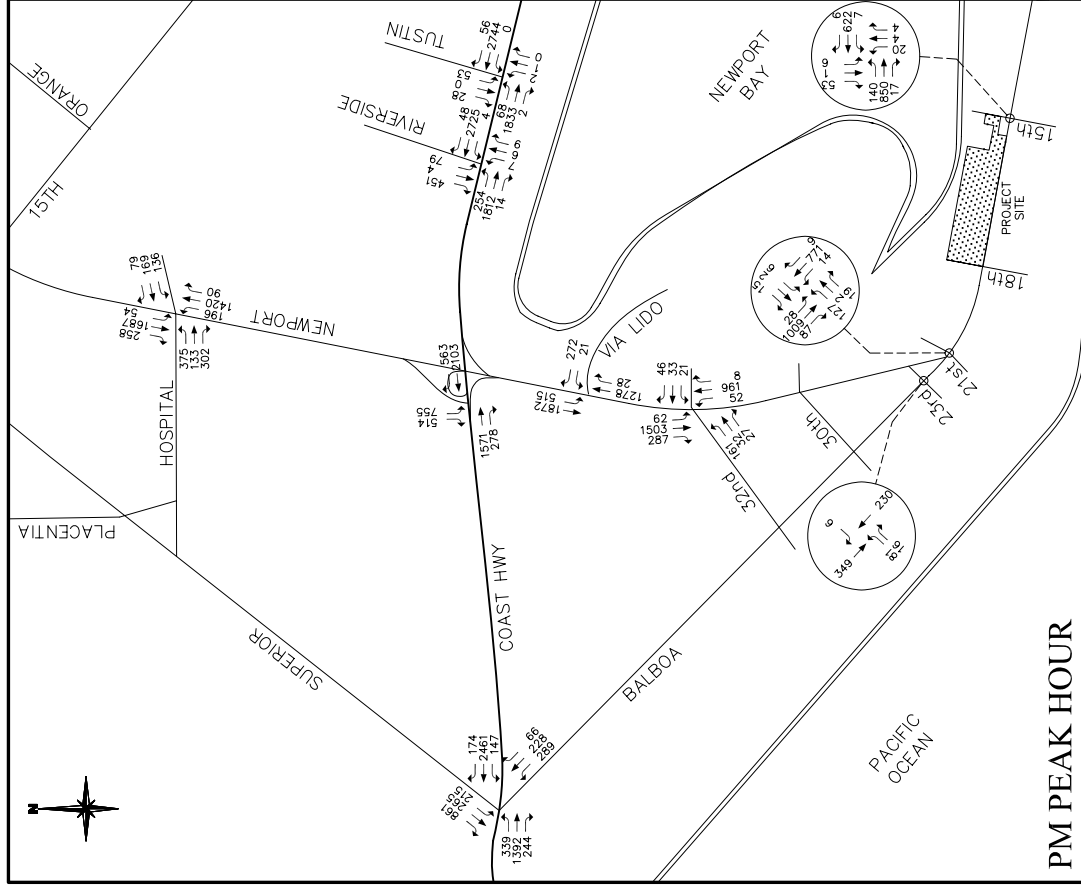
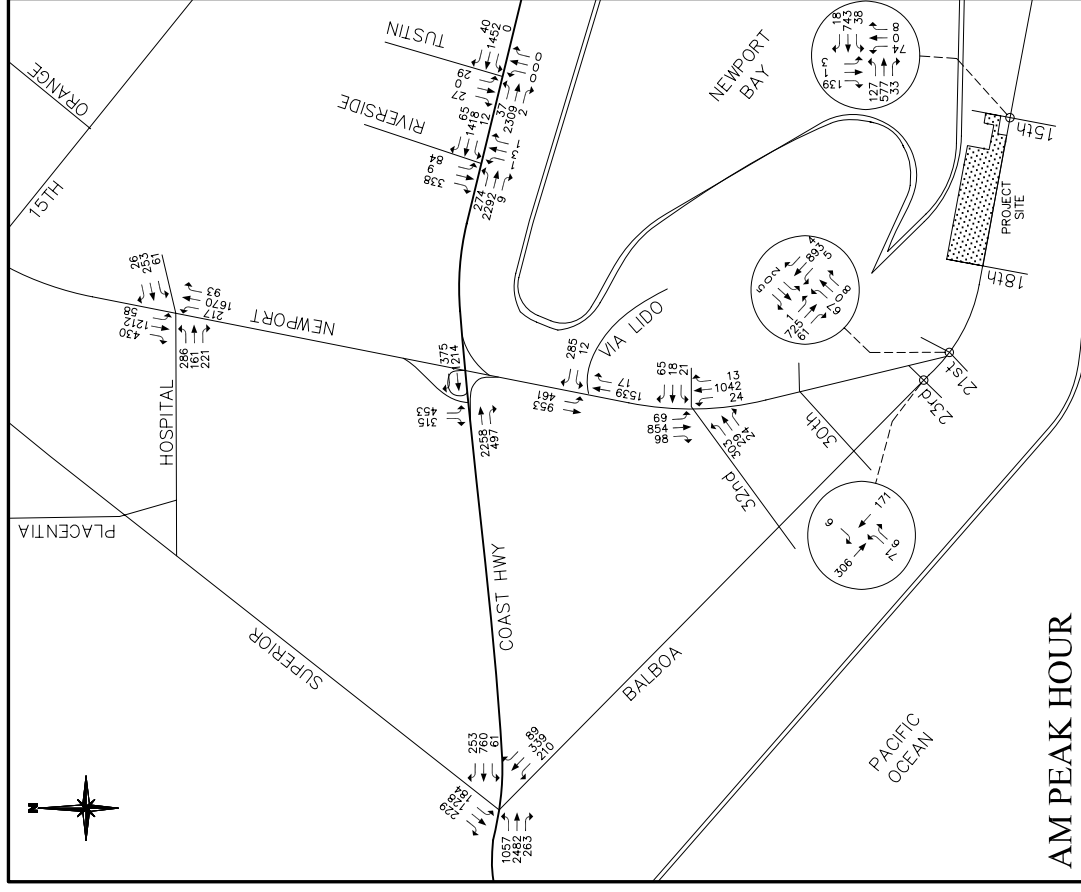


Figure A-7
EXISTING + GROWTH + APPROVED + CUMULATIVE
+ PROJECT PHASE 3 PEAK HOUR VOLUMES
- NON-PEAK SEASON

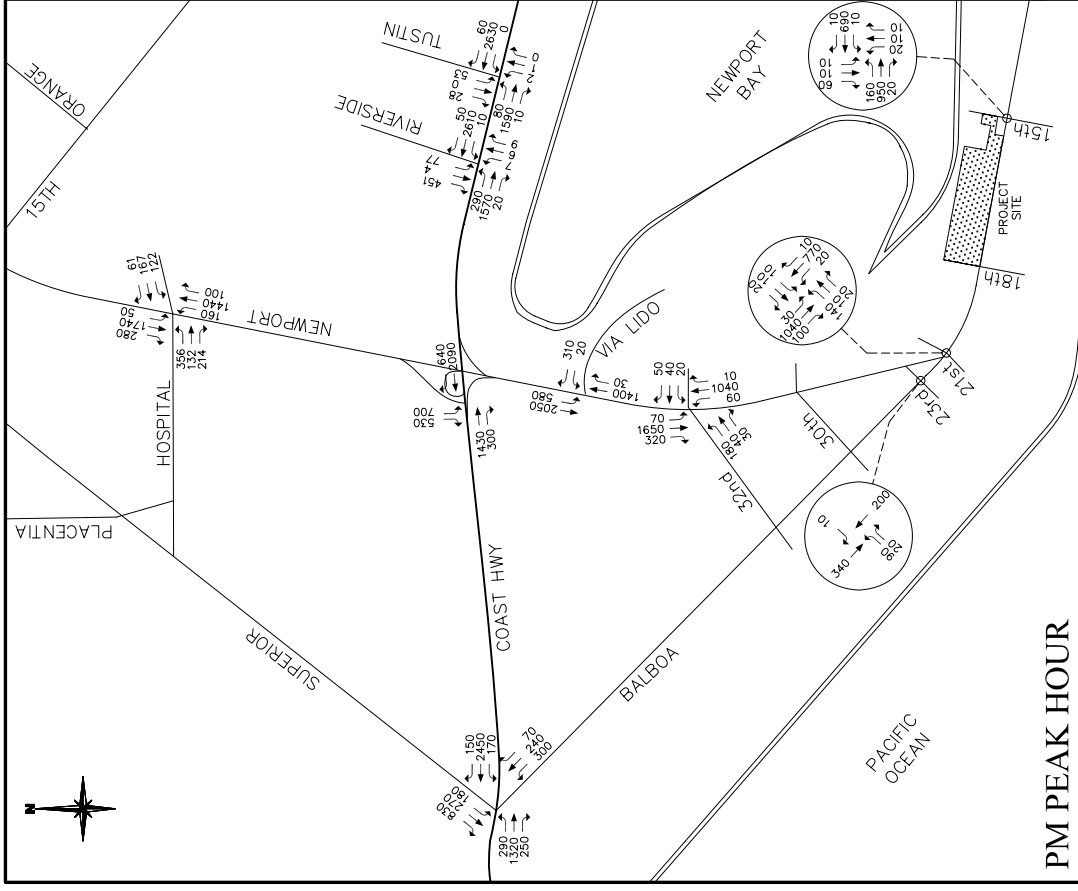
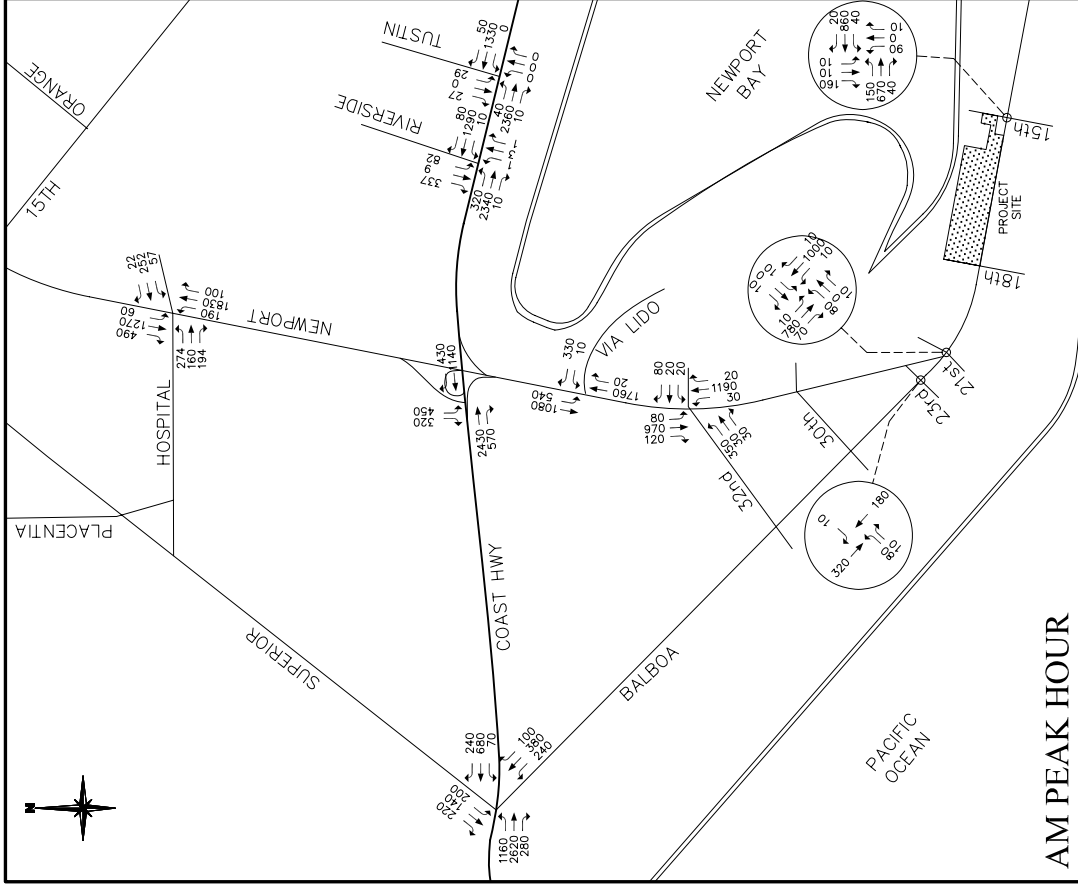


Figure A-8
EXISTING PEAK HOUR VOLUMES
- SUMMER SEASON

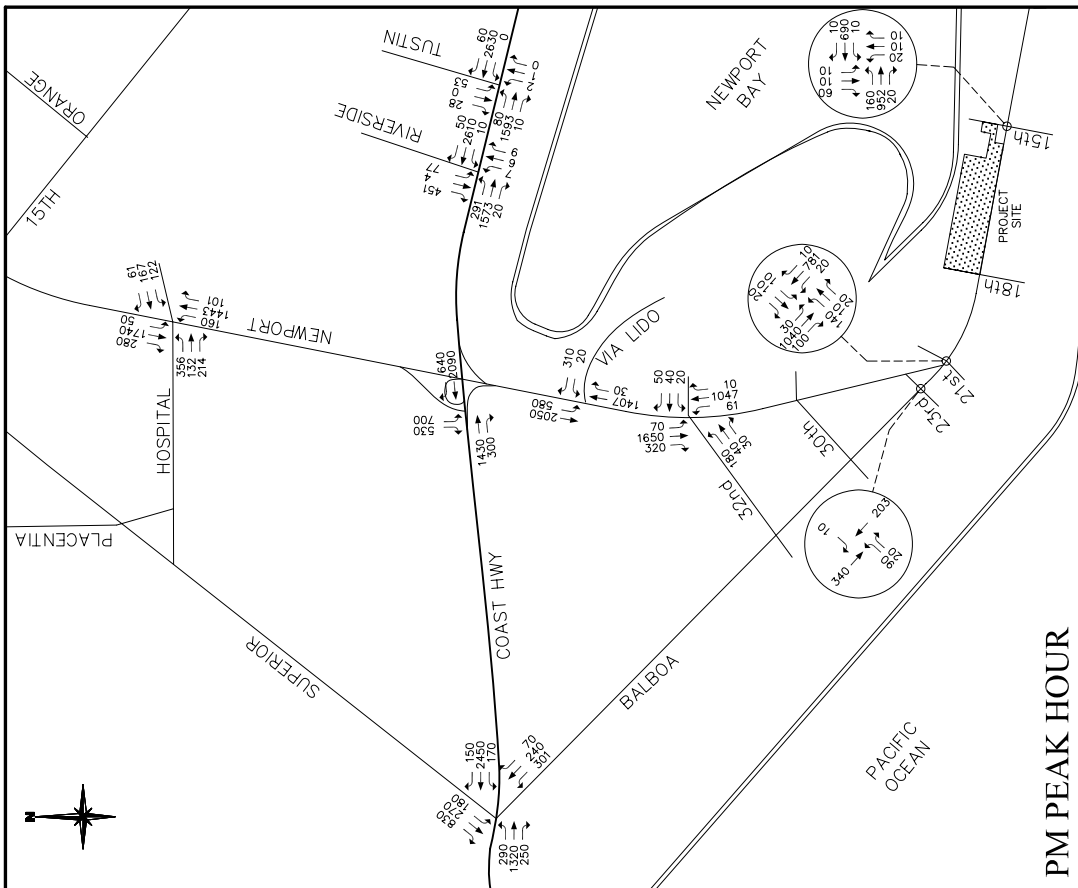
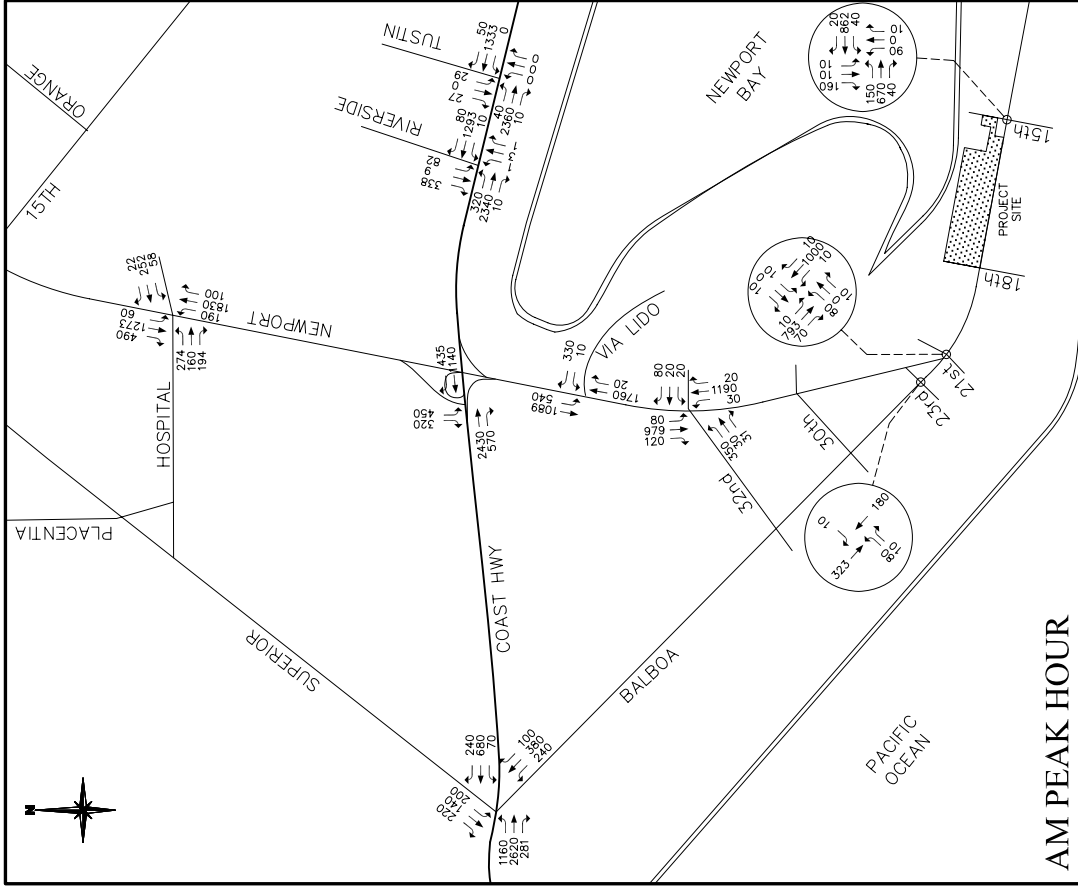


Figure A-9
EXISTING + PROJECT PHASE 3
PEAK HOUR VOLUMES
- SUMMER SEASON

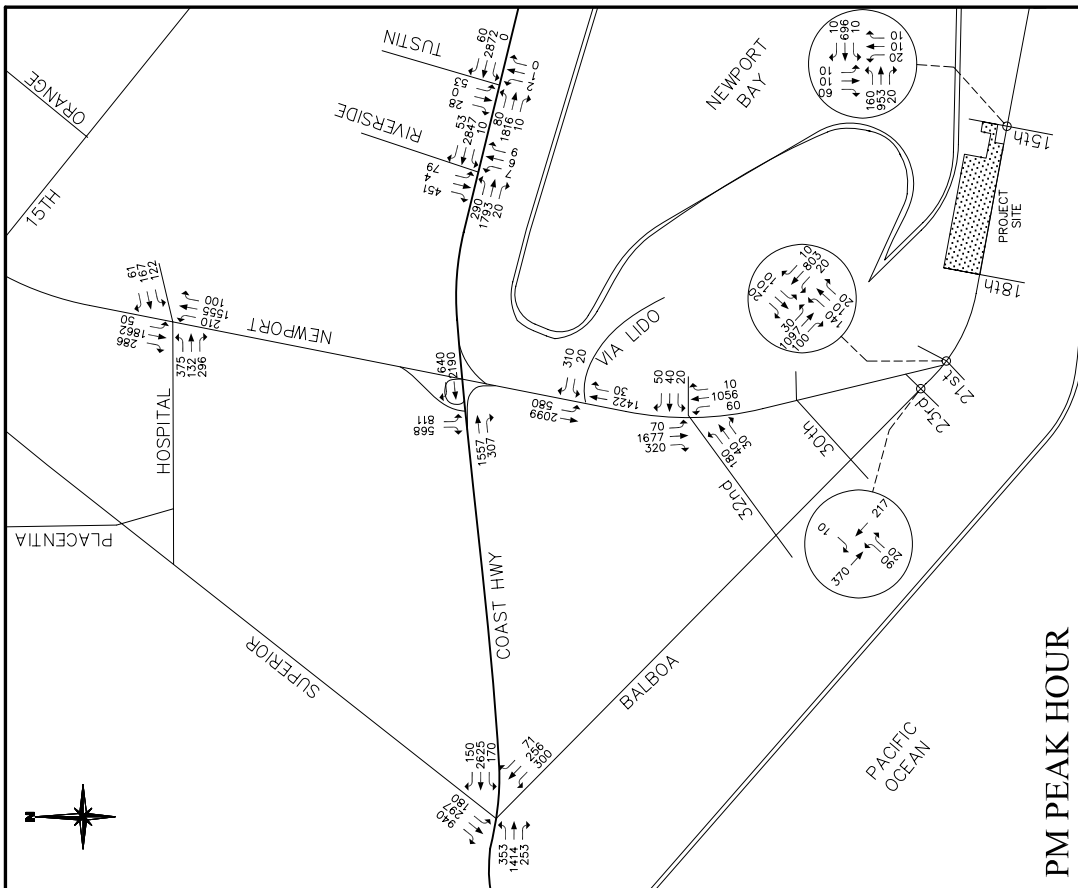
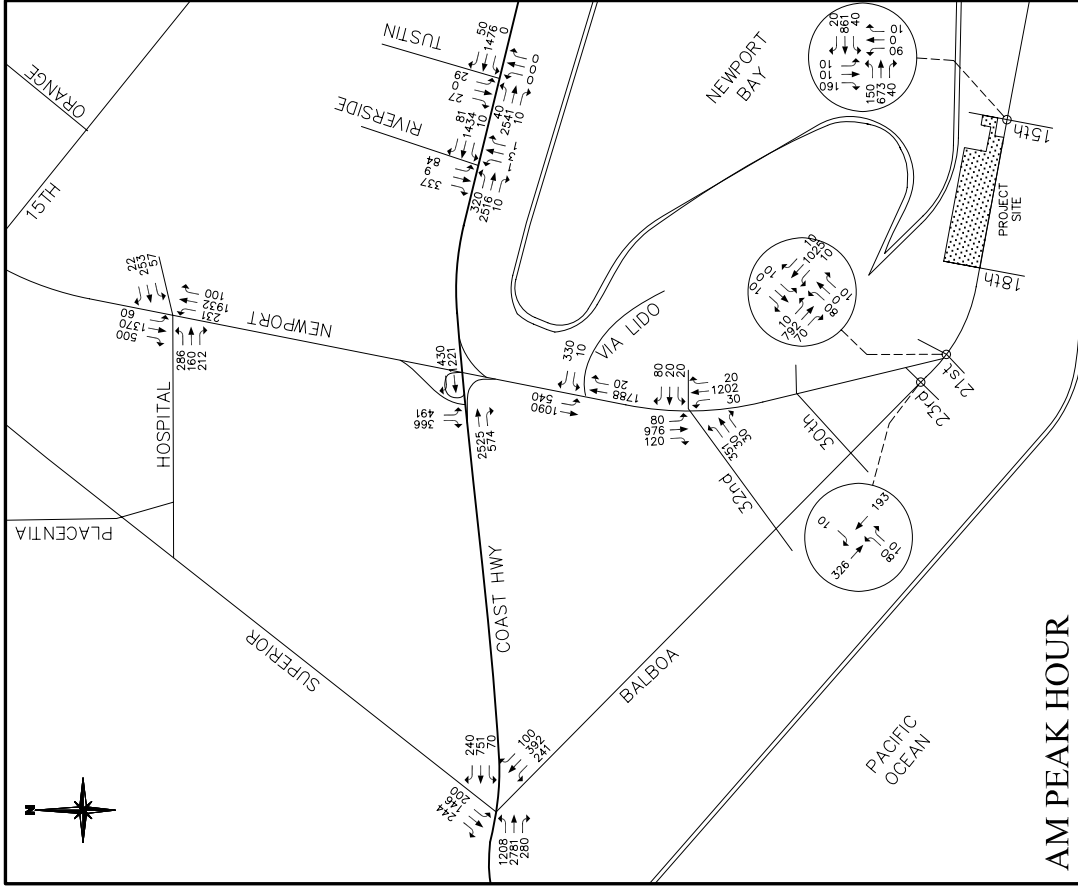


Figure A-10
 EXISTING + REGIONAL GROWTH + APPROVED
 PEAK HOUR VOLUMES
 - SUMMER SEASON

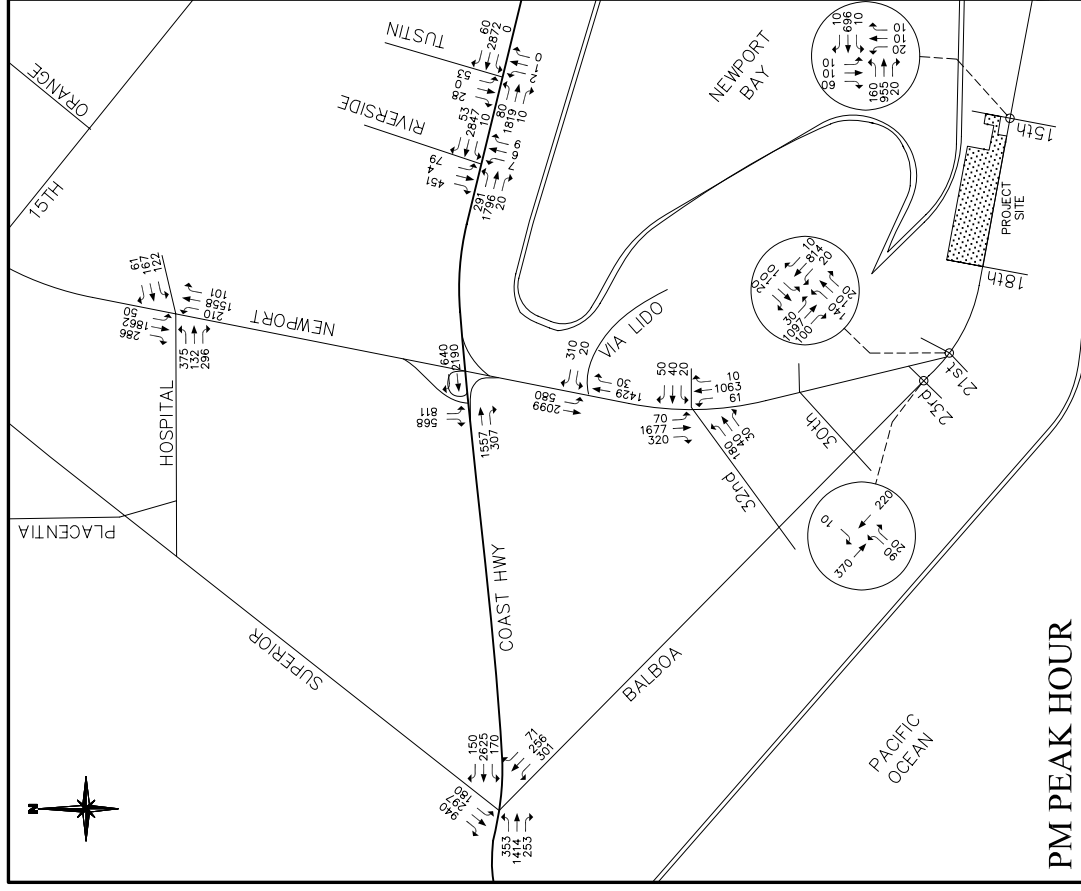
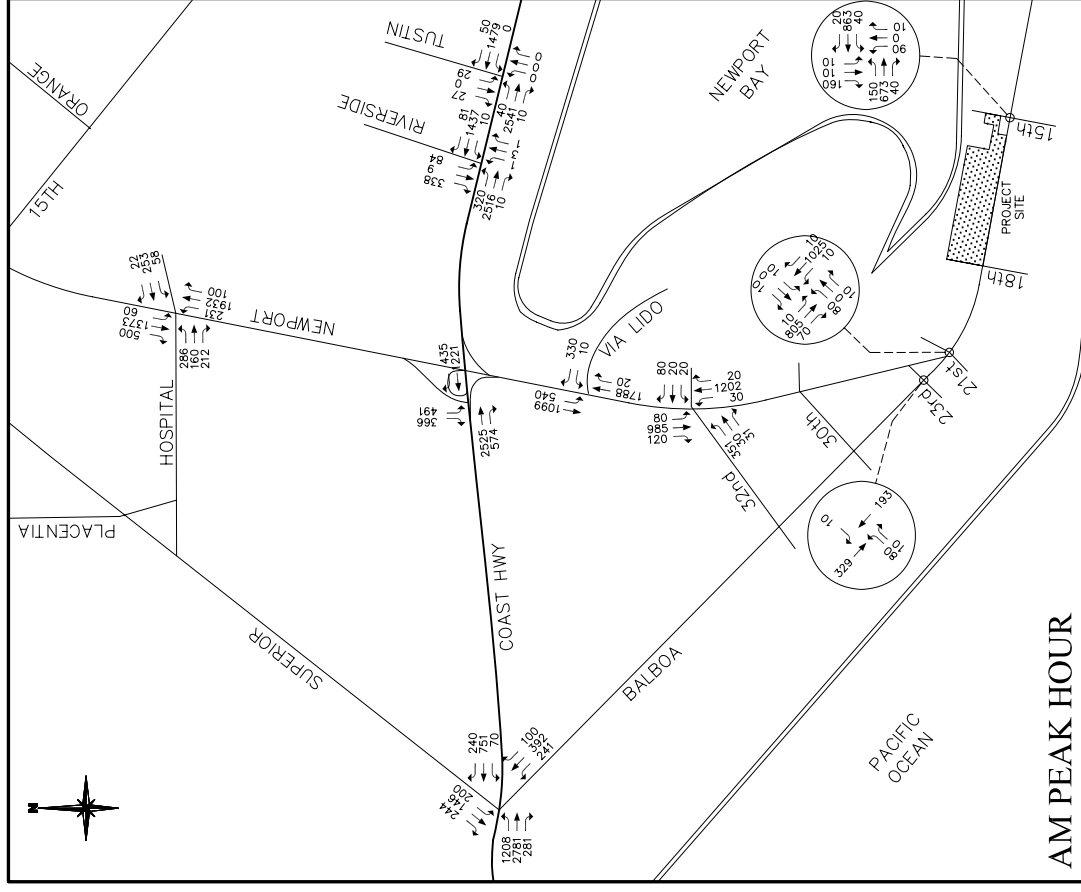


Figure A-11
EXISTING + GROWTH + APPROVED
+ PROJECT PHASE 3 PEAK HOUR VOLUMES
- SUMMER SEASON

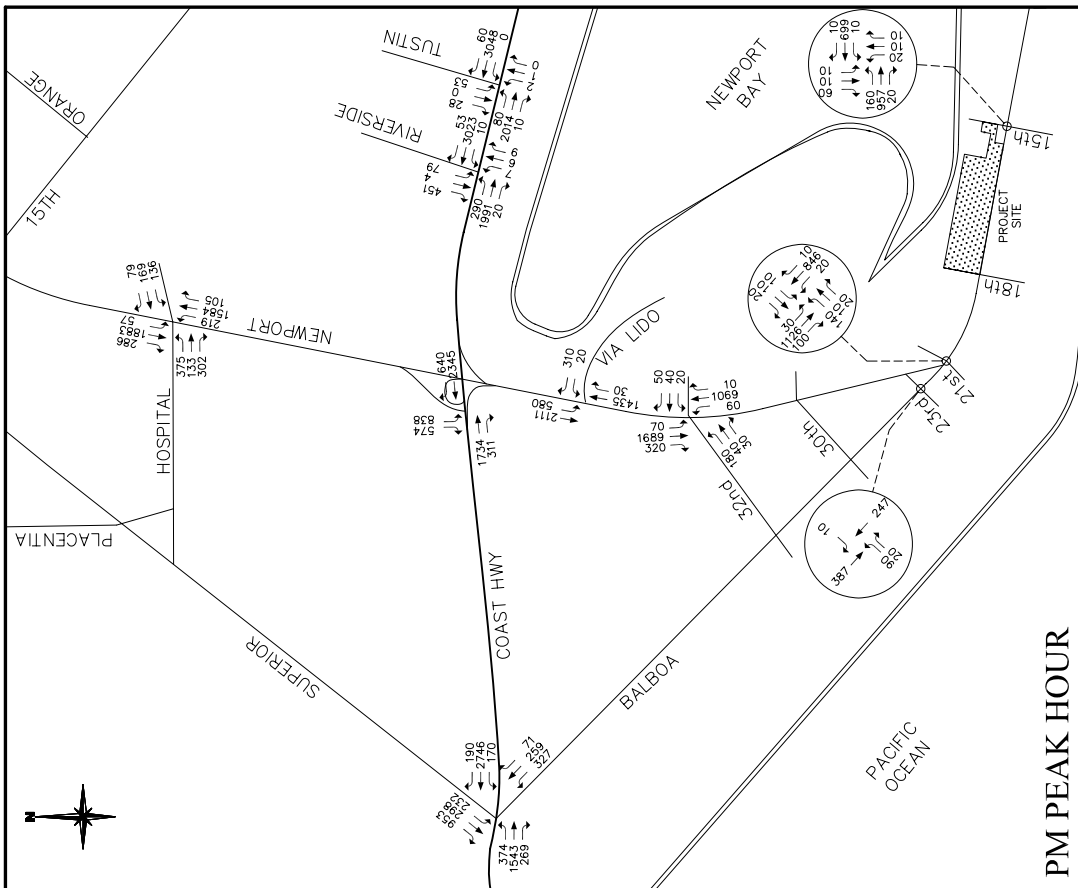
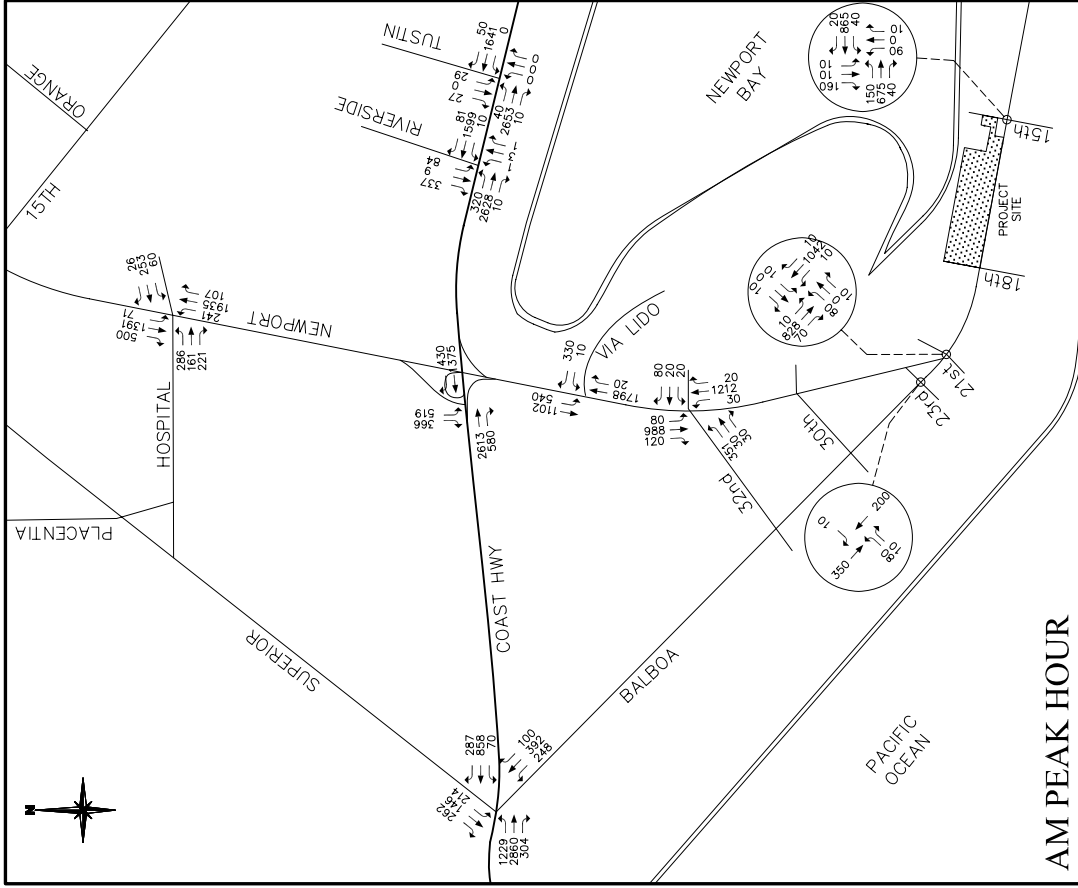


Figure A-12
 EXISTING + GROWTH + APPROVED + CUMULATIVE
 PEAK HOUR VOLUMES
 - SUMMER SEASON

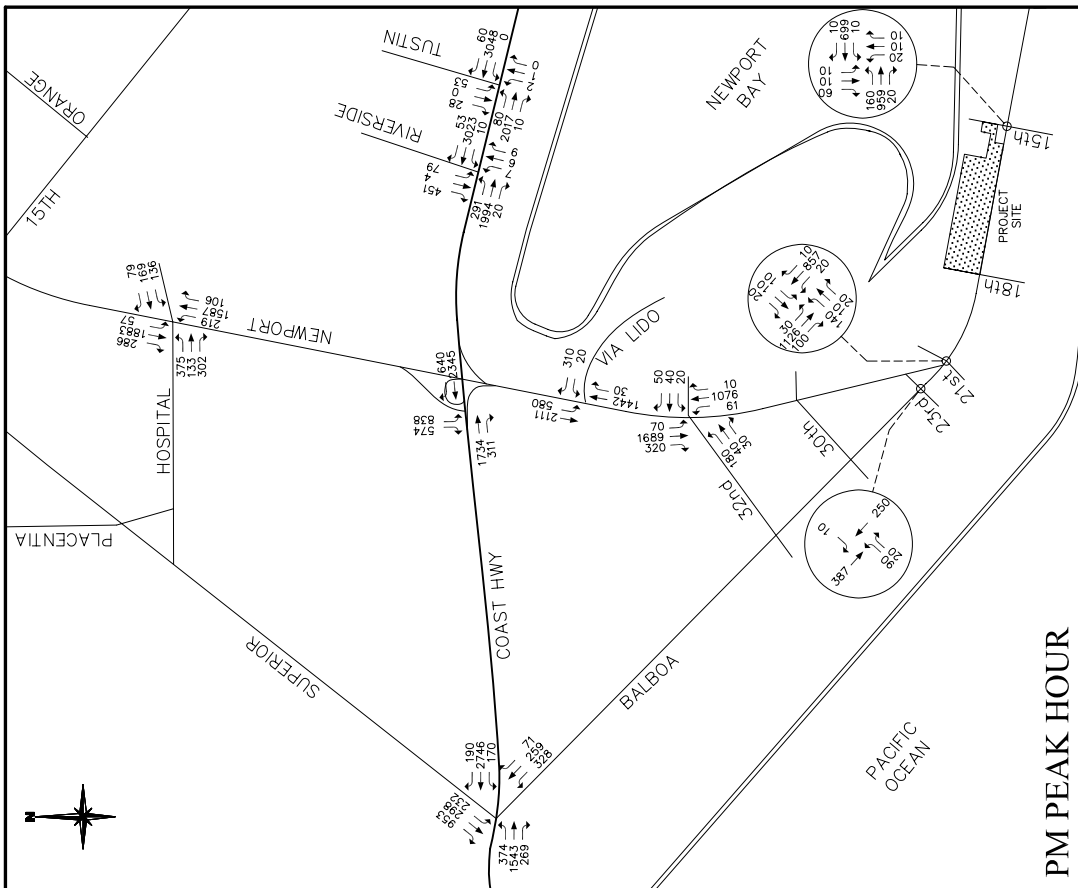
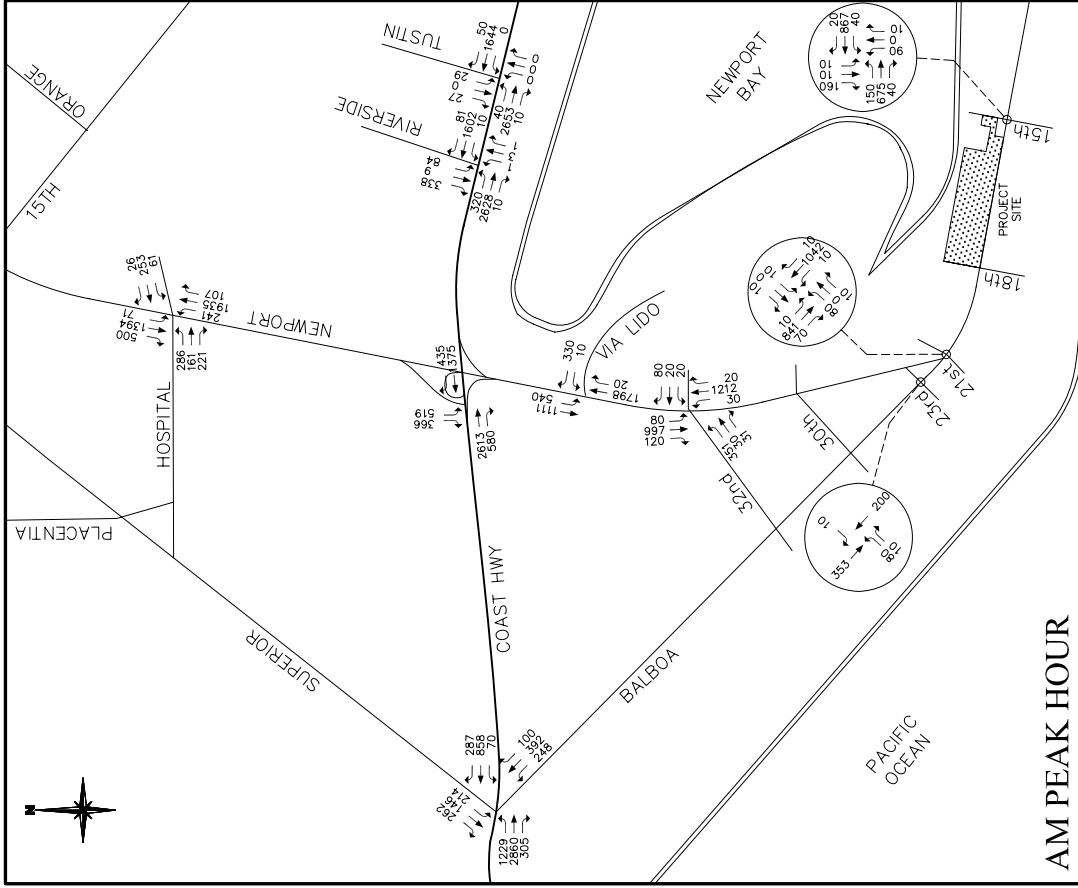


Figure A-13

EXISTING + GROWTH + APPROVED + CUMULATIVE
+ PROJECT PHASE 3 PEAK HOUR VOLUMES
- SUMMER SEASON

APPENDIX B

INTERSECTION CAPACITY UTILIZATION

Peak hour intersection volume/capacity ratios are calculated by means of intersection capacity utilization (ICU) values. ICU calculations were performed for the intersections shown in Figure B-1. For simplicity, signalization is assumed at each intersection. Precise ICU calculations of existing non-signalized intersections would require a more detailed analysis.

The procedure is based on the critical movement methodology, and shows the amount of capacity utilized by each critical move. A capacity of 1600 vehicles per hour (VPH) per lane is assumed with no clearance interval. Calculations are carried out to three decimal places. A "de-facto" right-turn lane is used in the ICU calculation for cases where a curb lane is wide enough to separately serve both thru and right-turn traffic (typically with a width of 19 feet from curb to outside of thru-lane with parking prohibited during peak periods). Such lanes are treated the same as striped right-turn lanes during the ICU calculations, but they are denoted on the ICU calculation worksheets using the letter "d" in place of a numerical entry for right-turn lanes.

The methodology also incorporates a check for right-turn capacity utilization. Both right-turn-on-green (RTOG) and right-turn-on-red (RTOR) capacity availability are calculated and checked against the total right-turn capacity need. If insufficient capacity is available, then an adjustment is made to the total capacity utilization value. The following example shows how this adjustment is made.

Example For Northbound Right

1. Right-Turn-On-Green (RTOG)

If NBT is critical move, then:

$$\text{RTOG} = \text{V/C (NBT)}$$

Otherwise,

$$\text{RTOG} = \text{V/C (NBL)} + \text{V/C (SBT)} - \text{V/C (SBL)}$$

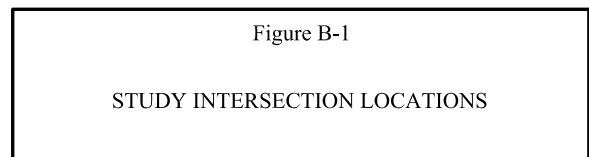
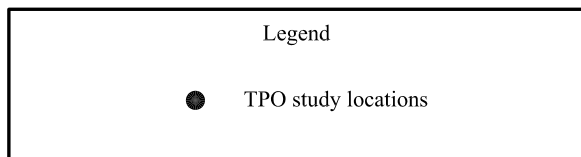
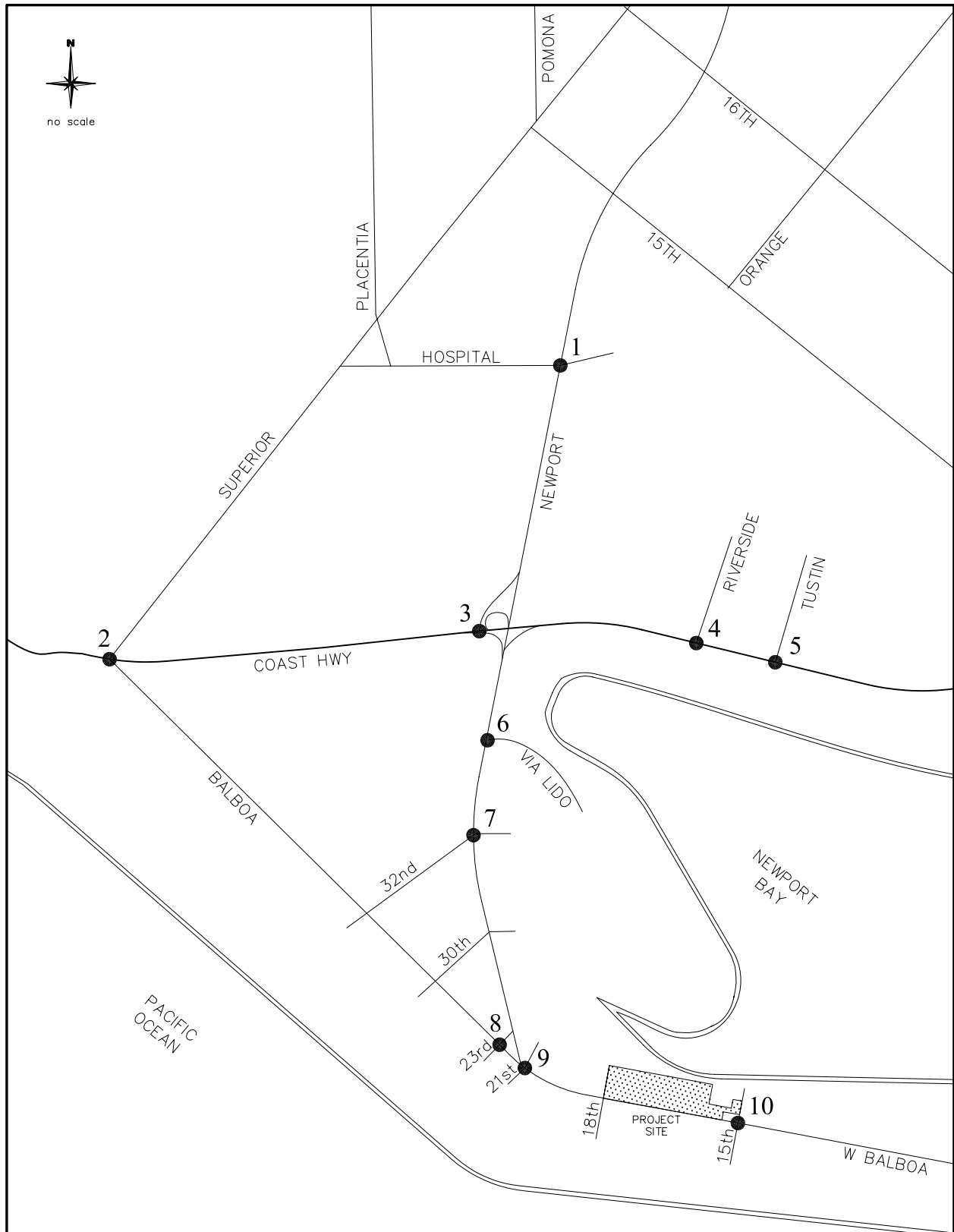
2. Right-Turn-On-Red (RTOR)

If WBL is critical move, then:

$$\text{RTOR} = \text{V/C (WBL)}$$

Otherwise,

$$\text{RTOR} = \text{V/C (EBL)} + \text{V/C (WBT)} - \text{V/C (EBT)}$$



3. Right-Turn Overlap Adjustment

If the northbound right is assumed to overlap with the adjacent westbound left, adjustments to the RTOG and RTOR values are made as follows:

$$\begin{aligned} \text{RTOG} &= \text{RTOG} + \text{V/C (WBL)} \\ \text{RTOR} &= \text{RTOR} - \text{V/C (WBL)} \end{aligned}$$

4. Total Right-Turn Capacity (RTC) Availability For NBR

$$\begin{aligned} \text{RTC} &= \text{RTOG} + \text{factor} \times \text{RTOR} \\ \text{Where factor} &= \text{RTOR saturation flow factor (75\%)} \end{aligned}$$

Right-turn adjustment is then as follows: Additional ICU = V/C (NBR) - RTC

A zero or negative value indicates that adequate capacity is available and no adjustment is necessary. A positive value indicates that the available RTOR and RTOG capacity does not adequately accommodate the right-turn V/C, therefore the right-turn is essentially considered to be a critical movement. In such cases, the right-turn adjustment is noted on the ICU worksheet and it is included in the total capacity utilization value. When it is determined that a right-turn adjustment is required for more than one right-turn movement, the word "multi" is printed on the worksheet instead of an actual right-turn movement reference, and the right-turn adjustments are cumulatively added to the total capacity utilization value. In such cases, further operational evaluation is typically carried out to determine if under actual operational conditions, the critical right-turns would operate simultaneously, and therefore a right-turn adjustment credit should be applied.

Shared Lane V/C Methodology

For intersection approaches where shared usage of a lane is permitted by more than one turn movement (e.g., left/thru, thru/right, left/thru/right), the individual turn volumes are evaluated to determine whether dedication of the shared lane is warranted to any one given turn movement. The following example demonstrates how this evaluation is carried out:

Example for Shared Left/Thru Lane

1. Average Lane Volume (ALV)

$$\text{ALV} = \frac{\text{Left-Turn Volume} + \text{Thru Volume}}{\text{Total Left} + \text{Thru Approach Lanes (including shared lane)}}$$

2. ALV for Each Approach

$$ALV \text{ (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Lanes (including shared lane)}}$$

$$ALV \text{ (Thru)} = \frac{\text{Thru Volume}}{\text{Thru Approach Lanes (including shared lane)}}$$

3. Lane Dedication is Warranted

If ALV (Left) is greater than ALV then full dedication of the shared lane to the left-turn approach is warranted. Left-turn and thru V/C ratios for this case are calculated as follows:

$$V/C \text{ (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (including shared lane)}}$$

$$V/C \text{ (Thru)} = \frac{\text{Thru Volume}}{\text{Thru Approach Capacity (excluding shared lane)}}$$

Similarly, if ALV (Thru) is greater than ALV then full dedication to the thru approach is warranted, and left-turn and thru V/C ratios are calculated as follows:

$$V/C \text{ (Left)} = \frac{\text{Left-Turn Volume}}{\text{Left Approach Capacity (excluding shared lane)}}$$

$$V/C \text{ (Thru)} = \frac{\text{Thru Volume}}{\text{Thru Approach Capacity (including shared lane)}}$$

4. Lane Dedication is not Warranted

If ALV (Left) and ALV (Thru) are both less than ALV, the left/thru lane is assumed to be truly shared and each left, left/thru or thru approach lane carries an evenly distributed volume of traffic equal to ALV. A combined left/thru V/C ratio is calculated as follows:

$$V/C \text{ (Left/Thru)} = \frac{\text{Left-Turn Volume} + \text{Thru Volume}}{\text{Total Left} + \text{Thru Approach Capacity (including shared lane)}}$$

This V/C (Left/Thru) ratio is assigned as the V/C (Thru) ratio for the critical movement analysis and ICU summary listing.

If split phasing has not been designated for this approach, the relative proportion of V/C (Thru) that is attributed to the left-turn volume is estimated as follows:

If approach has more than one left-turn (including shared lane), then:

$$V/C \text{ (Left)} = V/C \text{ (Thru)}$$

If approach has only one left-turn lane (shared lane), then:

$$V/C \text{ (Left)} = \frac{\text{Left-Turn Volume}}{\text{Single Approach Lane Capacity}}$$

If this left-turn movement is determined to be a critical movement, the V/C (Left) value is posted in brackets on the ICU summary printout.

These same steps are carried out for shared thru/right lanes. If full dedication of a shared thru/right lane to the right-turn movement is warranted, the right-turn V/C value calculated in step three is checked against the RTOR and RTOG capacity availability if the option to include right-turns in the V/C ratio calculations is selected. If the V/C value that is determined using the shared lane methodology described here is reduced due to RTOR and RTOG capacity availability, the V/C value for the thru/right lanes is posted in brackets.

When an approach contains more than one shared lane (e.g., left/thru and thru/right), steps one and two listed above are carried out for the three turn movements combined. Step four is carried out if dedication is not warranted for either of the shared lanes. If dedication of one of the shared lanes is warranted to one movement or another, step three is carried out for the two movements involved, and then steps one through four are repeated for the two movements involved in the other shared lane.

1. Newport & Hospital

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	166	.104*	137	.086*
NBT	3	4800	1565	.326	1273	.265
NBR	1	1600	86	.054	84	.053
SBL	1	1600	47	.029	47	.029
SBT	3	4800	1088	.314*	1544	.374*
SBR	0	0	420		252	
EBL	2	3200	274	.086*	356	.111*
EBT	1	1600	160	.100	132	.083
EBR	1	1600	194	.121	214	.134
WBL	1	1600	57	.036	122	.076
WBT	2	3200	252	.086*	167	.071*
WBR	0	0	22		61	
TOTAL CAPACITY UTILIZATION			.590		.642	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	190	.119*	160	.100*
NBT	3	4800	1830	.381	1440	.300
NBR	1	1600	100	.063	100	.063
SBL	1	1600	60	.038	50	.031
SBT	3	4800	1270	.367*	1740	.421*
SBR	0	0	490		280	
EBL	2	3200	274	.086*	356	.111*
EBT	1	1600	160	.100	132	.083
EBR	1	1600	194	.121	214	.134
WBL	1	1600	57	.036	122	.076
WBT	2	3200	252	.086*	167	.071*
WBR	0	0	22		61	
TOTAL CAPACITY UTILIZATION			.658		.703	

2. Balboa/Superior & Coast Hwy

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		202		261	
NBT	1.5	4800	327	.129*	209	.111*
NBR	0		89		65	
SBL	2.5		170		163	.051
SBT	1.5	6400	122	.046*	237	.074*
SBR	2	3200	187	.058	738	.231
EBL	2	3200	988	.309	255	.080*
EBT	3	4800	2242	.467*	1169	.244
EBR	1	1600	238	.149	225	.141
WBL	1	1600	61	.038*	147	.092
WBT	4	6400	582	.121	2165	.359*
WBR	0	0	206	.129	134	
Right Turn Adjustment					SBR	.097*
Note: Assumes N/S Split Phasing						
TOTAL CAPACITY UTILIZATION			.680		.721	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		240		300	
NBT	1.5	4800	380	.150*	240	.127*
NBR	0		100		70	
SBL	2.5		200		180	.056
SBT	1.5	6400	140	.053*	270	.084*
SBR	2	3200	220	.069	830	.259
EBL	2	3200	1160	.363	290	.091*
EBT	3	4800	2620	.546*	1320	.275
EBR	1	1600	280	.175	250	.156
WBL	1	1600	70	.044*	170	.106
WBT	4	6400	680	.142	2450	.406*
WBR	0	0	240	.150	150	
Right Turn Adjustment					SBR	.107*
Note: Assumes N/S Split Phasing						
TOTAL CAPACITY UTILIZATION			.793		.815	

3. Newport & Coast Hwy

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3200	384	.120*	617	.193*
SBT	0	0	0		0	
SBR	1	1600	269	.168	470	.294
EBL	0	0	0		0	
EBT	2	3200	2075	.648*	1267	.396*
EBR	f		487		267	
WBL	0	0	0		0	
WBT	3	4800	979	.204	1848	.385
WBR	f		370		563	
Right Turn Adjustment					SBR	.093*
TOTAL CAPACITY UTILIZATION				.768	.682	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	0	0	0		0	
NBR	0	0	0		0	
SBL	2	3200	450	.141*	700	.219*
SBT	0	0	0		0	
SBR	1	1600	320	.200	530	.331
EBL	0	0	0		0	
EBT	2	3200	2430	.759*	1430	.447*
EBR	f		570		300	
WBL	0	0	0		0	
WBT	3	4800	1140	.238	2090	.435
WBR	f		430		640	
Right Turn Adjustment					SBR	.103*
TOTAL CAPACITY UTILIZATION				.900	.769	

4. Riverside & Coast Hwy

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	1	{.001}*	7	
NBT	1	1600	3	.003	6	.014*
NBR	0	0	1		9	
SBL	0	0	82		77	{.048}*
SBT	1	1600	9	.057*	4	.051
SBR	1	1600	337	.211	451	.282
EBL	1	1600	274	.171	253	.158*
EBT	2	3200	2004	.629*	1388	.438
EBR	0	0	9		14	
WBL	1	1600	12	.008*	4	.003
WBT	3	4800	1106	.230	2312	.482*
WBR	1	1600	64	.040	45	.028
Right Turn Adjustment					SBR	.106*
TOTAL CAPACITY UTILIZATION				.695	.808	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	1	{.001}*	7	
NBT	1	1600	3	.003	6	.014*
NBR	0	0	1		9	
SBL	0	0	82		77	{.048}*
SBT	1	1600	9	.057*	4	.051
SBR	1	1600	337	.211	451	.282
EBL	1	1600	320	.200	290	.181*
EBT	2	3200	2340	.734*	1570	.497
EBR	0	0	10		20	
WBL	1	1600	10	.006*	10	.006
WBT	3	4800	1290	.269	2610	.544*
WBR	1	1600	80	.050	50	.031
Right Turn Adjustment					SBR	.088*
TOTAL CAPACITY UTILIZATION				.798	.875	

5. Tustin & Coast Hwy

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		2	{.001}*
NBT	1	1600	0	.000	1	.002
NBR	0	0	0		0	
SBL	0	0	29		53	
SBT	1	1600	0	.035*	0	.051*
SBR	0	0	27		28	
EBL	1	1600	37	.023	68	.043*
EBT	2	3200	2016	.631*	1406	.440
EBR	0	0	2		2	
WBL	0	0	0		0	
WBT	3	4800	1138	.237	2326	.485*
WBR	1	1600	40	.025	56	.035
TOTAL CAPACITY UTILIZATION			.666		.580	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		2	{.001}*
NBT	1	1600	0	.000	1	.002
NBR	0	0	0		0	
SBL	0	0	29		53	
SBT	1	1600	0	.035*	0	.051*
SBR	0	0	27		28	
EBL	1	1600	40	.025	80	.050*
EBT	2	3200	2360	.741*	1590	.500
EBR	0	0	10		10	
WBL	0	0	0		0	
WBT	3	4800	1330	.277	2630	.548*
WBR	1	1600	50	.031	60	.038
TOTAL CAPACITY UTILIZATION			.776		.650	

6. Newport & Via Lido

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	1501	.313*	1236	.258*
NBR	f		17		28	
SBL	2	3200	461	.144*	515	.161*
SBT	3	4800	922	.192	1811	.377
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	12	.008*	21	.013*
WBT	0	0	0		0	
WBR	2	3200	285	.089	272	.085
TOTAL CAPACITY UTILIZATION				.465	.432	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	0		0	
NBT	3	4800	1760	.367*	1400	.292*
NBR	f		20		30	
SBL	2	3200	540	.169*	580	.181*
SBT	3	4800	1080	.225	2050	.427
SBR	0	0	0		0	
EBL	0	0	0		0	
EBT	0	0	0		0	
EBR	0	0	0		0	
WBL	1	1600	10	.006*	20	.013*
WBT	0	0	0		0	
WBR	2	3200	330	.103	310	.097
TOTAL CAPACITY UTILIZATION				.542	.486	

7. Newport & 32nd

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	24	.015	51	.032*
NBT	2	3200	1020	.323*	925	.292
NBR	0	0	13		8	
SBL	1	1600	69	.043*	62	.039
SBT	2	3200	827	.289	1464	.547*
SBR	0	0	98		287	
EBL	1.5		302		161	
EBT	0.5	3200	29	.103*	32	.060*
EBR	f		23		27	
WBL	0	0	21		21	
WBT	2	3200	18	.012*	33	.017*
WBR	f		65		46	
Note: Assumes E/W Split Phasing						

TOTAL CAPACITY UTILIZATION .481 .656

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1	1600	30	.019	60	.038*
NBT	2	3200	1190	.378*	1040	.328
NBR	0	0	20		10	
SBL	1	1600	80	.050*	70	.044
SBT	2	3200	970	.341	1650	.616*
SBR	0	0	120		320	
EBL	1.5		350		180	
EBT	0.5	3200	30	.119*	40	.069*
EBR	f		30		30	
WBL	0	0	20		20	
WBT	2	3200	20	.013*	40	.019*
WBR	f		80		50	
Note: Assumes E/W Split Phasing						

TOTAL CAPACITY UTILIZATION .560 .742

8. 23rd & Balboa

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		71	{.024}*	81	{.030}*
NBT	0	3200	0	.024	0	.030
NBR	0.5		6		16	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	6	.004	6	.004
EBL	0	0	0		0	
EBT	2	3200	273	.085*	302	.094*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	151	.047	180	.056
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.109		.124	

Existing + Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		71	{.024}*	81	{.030}*
NBT	0	3200	0	.024	0	.030
NBR	0.5		6		16	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	6	.004	6	.004
EBL	0	0	0		0	
EBT	2	3200	276	.086*	302	.094*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	151	.047	183	.057
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.110		.124	

Existing + Regional Growth + Approved						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		71	{.024}*	81	{.030}*
NBT	0	3200	0	.024	0	.030
NBR	0.5		6		16	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	6	.004	6	.004
EBL	0	0	0		0	
EBT	2	3200	279	.087*	332	.104*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	164	.051	197	.062
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.111		.134	

Existing + Growth + Approved + Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	1.5		71	{.024}*	81	{.030}*
NBT	0	3200	0	.024	0	.030
NBR	0.5		6		16	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	6	.004	6	.004
EBL	0	0	0		0	
EBT	2	3200	282	.088*	332	.104*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	164	.051	200	.063
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.112		.134	

8. 23rd & Balboa

Existing + Growth + Approved + Cumulative						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		71	{.024}*	81	{.030}*
NBT	0	3200	0	.024	0	.030
NBR	0.5		6		16	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	6	.004	6	.004
EBL	0	0	0		0	
EBT	2	3200	303	.095*	349	.109*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	171	.053	227	.071
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.119		.139	

Existing + Growth + Approved + Cumulative + Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		71	{.024}*	81	{.030}*
NBT	0	3200	0	.024	0	.030
NBR	0.5		6		16	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	6	.004	6	.004
EBL	0	0	0		0	
EBT	2	3200	306	.096*	349	.109*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	171	.053	230	.072
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.120		.139	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		80	{.028}*	90	{.034}*
NBT	0	3200	0	.028	0	.034
NBR	0.5		10		20	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	10	.006	10	.006
EBL	0	0	0		0	
EBT	2	3200	320	.100*	340	.106*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	180	.056	200	.063
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.128		.140	

Summer - Existing + Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		80	{.028}*	90	{.034}*
NBT	0	3200	0	.028	0	.034
NBR	0.5		10		20	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	10	.006	10	.006
EBL	0	0	0		0	
EBT	2	3200	323	.101*	340	.106*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	180	.056	203	.063
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.129		.140	

8. 23rd & Balboa

Summer - Existing + Regional Growth + Approved						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		80	{.028}*	90	{.034}*
NBT	0	3200	0	.028	0	.034
NBR	0.5		10		20	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	10	.006	10	.006
EBL	0	0	0		0	
EBT	2	3200	326	.102*	370	.116*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	193	.060	217	.068
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.130		.150	

Summer - Existing + Growth + Approved + Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		80	{.028}*	90	{.034}*
NBT	0	3200	0	.028	0	.034
NBR	0.5		10		20	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	10	.006	10	.006
EBL	0	0	0		0	
EBT	2	3200	329	.103*	370	.116*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	193	.060	220	.069
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.131		.150	

Summer - Existing + Growth + Approved + Cumulative						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		80	{.028}*	90	{.034}*
NBT	0	3200	0	.028	0	.034
NBR	0.5		10		20	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	10	.006	10	.006
EBL	0	0	0		0	
EBT	2	3200	350	.109*	387	.121*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	200	.063	247	.077
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.137		.155	

Summer - Existing + Growth + Approved + Cumulative + Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	1.5		80	{.028}*	90	{.034}*
NBT	0	3200	0	.028	0	.034
NBR	0.5		10		20	
SBL	0	0	0		0	
SBT	0	0	0		0	
SBR	1	1600	10	.006	10	.006
EBL	0	0	0		0	
EBT	2	3200	353	.110*	387	.121*
EBR	0	0	0		0	
WBL	0	0	0		0	
WBT	2	3200	200	.063	250	.078
WBR	0	0	0		0	
TOTAL CAPACITY UTILIZATION			.138		.155	

9. 21st & Balboa

Existing						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	67		127	
NBT	1	1600	0	.047*	2	.093*
NBR	0	0	8		19	
SBL	0	0	2	{.001}*}	6	{.004}*}
SBT	1	1600	0	.004	2	.014
SBR	0	0	5		15	
EBL	1	1600	1	.001*	28	.018
EBT	3	4800	664	.151	923	.210*
EBR	0	0	61		87	
WBL	1	1600	5	.003	14	.009*
WBT	3	4800	851	.178*	684	.144
WBR	0	0	4		9	
TOTAL CAPACITY UTILIZATION			.227		.316	

Existing + Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	67		127	
NBT	1	1600	0	.047*	2	.093*
NBR	0	0	8		19	
SBL	0	0	2	{.001}*}	6	{.004}*}
SBT	1	1600	0	.004	2	.014
SBR	0	0	5		15	
EBL	1	1600	1	.001*	28	.018
EBT	3	4800	677	.154	923	.210*
EBR	0	0	61		87	
WBL	1	1600	5	.003	14	.009*
WBT	3	4800	851	.178*	695	.147
WBR	0	0	4		9	
TOTAL CAPACITY UTILIZATION			.227		.316	

Existing + Regional Growth + Approved						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	67		127	
NBT	1	1600	0	.047*	2	.093*
NBR	0	0	8		19	
SBL	0	0	2	{.001}*}	6	{.004}*}
SBT	1	1600	0	.004	2	.014
SBR	0	0	5		15	
EBL	1	1600	1	.001*	28	.018
EBT	3	4800	676	.154	980	.222*
EBR	0	0	61		87	
WBL	1	1600	5	.003	14	.009*
WBT	3	4800	876	.183*	717	.151
WBR	0	0	4		9	
TOTAL CAPACITY UTILIZATION			.232		.328	

Existing + Growth + Approved + Project						
	LANES	CAPACITY	AM PK HOUR VOL	AM PK HOUR V/C	PM PK HOUR VOL	PM PK HOUR V/C
NBL	0	0	67		127	
NBT	1	1600	0	.047*	2	.093*
NBR	0	0	8		19	
SBL	0	0	2	{.001}*}	6	{.004}*}
SBT	1	1600	0	.004	2	.014
SBR	0	0	5		15	
EBL	1	1600	1	.001*	28	.018
EBT	3	4800	689	.156	980	.222*
EBR	0	0	61		87	
WBL	1	1600	5	.003	14	.009*
WBT	3	4800	876	.183*	728	.154
WBR	0	0	4		9	
TOTAL CAPACITY UTILIZATION			.232		.328	

9. 21st & Balboa

Existing + Growth + Approved + Cumulative						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	67		127	
NBT	1	1600	0	.047*	2	.093*
NBR	0	0	8		19	
SBL	0	0	2	{.001}*	6	{.004}*
SBT	1	1600	0	.004	2	.014
SBR	0	0	5		15	
EBL	1	1600	1	.001*	28	.018
EBT	3	4800	712	.161	1009	.228*
EBR	0	0	61		87	
WBL	1	1600	5	.003	14	.009*
WBT	3	4800	893	.187*	760	.160
WBR	0	0	4		9	
TOTAL CAPACITY UTILIZATION			.236		.334	

Existing + Growth + Approved + Cumulative + Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	67		127	
NBT	1	1600	0	.047*	2	.093*
NBR	0	0	8		19	
SBL	0	0	2	{.001}*	6	{.004}*
SBT	1	1600	0	.004	2	.014
SBR	0	0	5		15	
EBL	1	1600	1	.001*	28	.018
EBT	3	4800	725	.164	1009	.228*
EBR	0	0	61		87	
WBL	1	1600	5	.003	14	.009*
WBT	3	4800	893	.187*	771	.163
WBR	0	0	4		9	
TOTAL CAPACITY UTILIZATION			.236		.334	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	80	{.050}*	140	{.087}*
NBT	1	1600	0	.056	10	.106
NBR	0	0	10		20	
SBL	0	0	10		10	
SBT	1	1600	0	.013*	10	.025*
SBR	0	0	10		20	
EBL	1	1600	10	.006*	30	.019
EBT	3	4800	780	.177	1040	.238*
EBR	0	0	70		100	
WBL	1	1600	10	.006	20	.013*
WBT	3	4800	1000	.210*	770	.163
WBR	0	0	10		10	
TOTAL CAPACITY UTILIZATION			.279		.363	

Summer - Existing + Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	80	{.050}*	140	{.087}*
NBT	1	1600	0	.056	10	.106
NBR	0	0	10		20	
SBL	0	0	10		10	
SBT	1	1600	0	.013*	10	.025*
SBR	0	0	10		20	
EBL	1	1600	10	.006*	30	.019
EBT	3	4800	793	.180	1040	.238*
EBR	0	0	70		100	
WBL	1	1600	10	.006	20	.013*
WBT	3	4800	1000	.210*	781	.165
WBR	0	0	10		10	
TOTAL CAPACITY UTILIZATION			.279		.363	

9. 21st & Balboa

Summer - Existing + Regional Growth + Approved						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	80	{.050}*	140	{.087}*
NBT	1	1600	0	.056	10	.106
NBR	0	0	10		20	
SBL	0	0	10		10	
SBT	1	1600	0	.013*	10	.025*
SBR	0	0	10		20	
EBL	1	1600	10	.006*	30	.019
EBT	3	4800	792	.180	1097	.249*
EBR	0	0	70		100	
WBL	1	1600	10	.006	20	.013*
WBT	3	4800	1025	.216*	803	.169
WBR	0	0	10		10	
TOTAL CAPACITY UTILIZATION			.285		.374	

Summer - Existing + Growth + Approved + Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	80	{.050}*	140	{.087}*
NBT	1	1600	0	.056	10	.106
NBR	0	0	10		20	
SBL	0	0	10		10	
SBT	1	1600	0	.013*	10	.025*
SBR	0	0	10		20	
EBL	1	1600	10	.006*	30	.019
EBT	3	4800	805	.182	1097	.249*
EBR	0	0	70		100	
WBL	1	1600	10	.006	20	.013*
WBT	3	4800	1025	.216*	814	.172
WBR	0	0	10		10	
TOTAL CAPACITY UTILIZATION			.285		.374	

Summer - Existing + Growth + Approved + Cumulative						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	80	{.050}*	140	{.087}*
NBT	1	1600	0	.056	10	.106
NBR	0	0	10		20	
SBL	0	0	10		10	
SBT	1	1600	0	.013*	10	.025*
SBR	0	0	10		20	
EBL	1	1600	10	.006*	30	.019
EBT	3	4800	828	.187	1126	.255*
EBR	0	0	70		100	
WBL	1	1600	10	.006	20	.013*
WBT	3	4800	1042	.219*	846	.178
WBR	0	0	10		10	
TOTAL CAPACITY UTILIZATION			.288		.380	

Summer - Existing + Growth + Approved + Cumulative + Project						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	80	{.050}*	140	{.087}*
NBT	1	1600	0	.056	10	.106
NBR	0	0	10		20	
SBL	0	0	10		10	
SBT	1	1600	0	.013*	10	.025*
SBR	0	0	10		20	
EBL	1	1600	10	.006*	30	.019
EBT	3	4800	841	.190	1126	.255*
EBR	0	0	70		100	
WBL	1	1600	10	.006	20	.013*
WBT	3	4800	1042	.219*	857	.181
WBR	0	0	10		10	
TOTAL CAPACITY UTILIZATION			.288		.380	

10. 15th & Balboa

Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	74	{.046}*	20	{.012}*
NBT	1	1600	0	.051	4	.018
NBR	0	0	8		4	
SBL	1	1600	3	.002	6	.004
SBT	1	1600	1	.088*	1	.034*
SBR	0	0	139		53	
EBL	1	1600	127	.079*	140	.088*
EBT	2	3200	572	.189	841	.268
EBR	0	0	33		17	
WBL	0	0	38		7	
WBT	2	3200	736	.248*	613	.196*
WBR	0	0	18		6	
TOTAL CAPACITY UTILIZATION			.461		.330	

Summer - Existing						
	LANES	CAPACITY	AM PK HOUR		PM PK HOUR	
			VOL	V/C	VOL	V/C
NBL	0	0	90	{.056}*	20	{.012}*
NBT	1	1600	0	.063	10	.025
NBR	0	0	10		10	
SBL	1	1600	10	.006	10	.006
SBT	1	1600	10	.106*	10	.044*
SBR	0	0	160		60	
EBL	1	1600	150	.094*	160	.100*
EBT	2	3200	670	.222	950	.303
EBR	0	0	40		20	
WBL	0	0	40		10	
WBT	2	3200	860	.288*	690	.222*
WBR	0	0	20		10	
TOTAL CAPACITY UTILIZATION			.544		.378	

APPENDIX C
1% ANALYSIS WORKSHEETS

1% Traffic Volume Analysis

Intersection: 1. Newport Blvd & Hospital Rd
Existing Traffic Volumes Based on Average Winter/Spring 2008

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	1817	55	96	0	1968	20	0
Southbound	1555	47	78	0	1680	17	3
Eastbound	628	0	30	0	658	7	0
Westbound	331	0	1	0	332	3	1

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	1494	45	127	0	1666	17	4
Southbound	1843	55	82	0	1980	20	0
Eastbound	702	0	102	0	804	8	0
Westbound	350	0	0	0	350	4	0

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 2. Balboa Blvd/Superior Ave & Coast Hwy
Existing Traffic Volumes Based on Average Winter/Spring 2006

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	618	0	13	0	631	6	0
Southbound	479	0	30	23	532	5	0
Eastbound	3468	173	97	46	3784	38	1
Westbound	849	42	42	231	1164	12	0

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	535	0	17	0	552	6	1
Southbound	1138	0	137	79	1354	14	0
Eastbound	1649	82	102	158	1991	20	0
Westbound	2446	122	67	142	2777	28	0

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 3. Newport Blvd & Coast Hwy
Existing Traffic Volumes Based on Average Winter/Spring 2007

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	0	0	0	0	0	0	0
Southbound	653	26	61	0	740	7	0
Eastbound	2562	102	16	67	2747	27	0
Westbound	1098	44	42	231	1415	14	5

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	0	0	0	0	0	0	0
Southbound	1087	43	105	0	1235	12	0
Eastbound	1534	61	83	238	1916	19	0
Westbound	2411	96	26	142	2675	27	0

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 4. Riverside Ave & Coast Hwy
Existing Traffic Volumes Based on Average Winter/Spring 2008

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	5	0	0	0	5	0	0
Southbound	428	0	2	0	430	4	1
Eastbound	2287	69	116	67	2539	25	0
Westbound	1182	35	112	231	1560	16	3

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	22	0	0	0	22	0	0
Southbound	532	0	2	0	534	5	0
Eastbound	1655	50	181	238	2124	21	4
Westbound	2361	71	171	142	2745	27	0

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 5. Tustin Ave & Coast Hwy
Existing Traffic Volumes Based on Average Winter/Spring 2008

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	0	0	0	0	0	0	0
Southbound	56	0	0	0	56	1	0
Eastbound	2055	62	121	67	2305	23	0
Westbound	1178	35	112	231	1556	16	3

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	3	0	0	0	3	0	0
Southbound	81	0	0	0	81	1	0
Eastbound	1476	44	184	238	1942	19	3
Westbound	2382	71	172	142	2767	28	0

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 6. Newport Blvd & Via Lido
Existing Traffic Volumes Based on Average Winter/Spring 2007

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	1518	0	28	0	1546	15	0
Southbound	1383	0	10	0	1393	14	9
Eastbound	0	0	0	0	0	0	0
Westbound	297	0	0	0	297	3	0

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	1264	0	22	0	1286	13	7
Southbound	2326	0	49	0	2375	24	0
Eastbound	0	0	0	0	0	0	0
Westbound	293	0	0	0	293	3	0

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 7. Newport Blvd & 32nd St
Existing Traffic Volumes Based on Average Winter/Spring 2007

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	1057	0	12	0	1069	11	0
Southbound	994	0	6	0	1000	10	9
Eastbound	354	0	1	0	355	4	1
Westbound	104	0	0	0	104	1	0

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	984	0	16	0	1000	10	8
Southbound	1813	0	27	0	1840	18	0
Eastbound	220	0	0	0	220	2	0
Westbound	100	0	0	0	100	1	0

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 8. 23rd St & Balboa Blvd
Existing Traffic Volumes Based on Average Winter/Spring 2009

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	77	0	0	0	77	1	0
Southbound	6	0	0	0	6	0	0
Eastbound	273	0	6	0	279	3	3
Westbound	151	0	13	0	164	2	0

Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

==> Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	97	0	0	0	97	1	0
Southbound	6	0	0	0	6	0	0
Eastbound	302	0	30	0	332	3	0
Westbound	180	0	17	0	197	2	3

Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

==> Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 9. 21st St & Balboa Blvd
Existing Traffic Volumes Based on Average Winter/Spring 2009

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	75	0	0	0	75	1	0
Southbound	7	0	0	0	7	0	0
Eastbound	726	0	12	0	738	7	13
Westbound	860	0	25	0	885	9	0

Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

==> Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	148	0	0	0	148	1	0
Southbound	23	0	0	0	23	0	0
Eastbound	1038	0	57	0	1095	11	0
Westbound	707	0	33	0	740	7	11

Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

==> Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

1% Traffic Volume Analysis

Intersection: 10. 15th St & Balboa Blvd
Existing Traffic Volumes Based on Average Winter/Spring 2009

Approach Direction	Existing Peak 1 Hour Volume	Peak 1 Hour Regional Growth Volume	Approved Projects Peak 1 Hour Volume	Cumulative Projects Peak 1 Hour Volume	Projected Peak 1 Hour Volume	1% of Projected Peak 1 Hour Volume	Project Peak 1 Hour Volume
<u>AM PEAK PERIOD</u>							
Northbound	82	0	0	0	82	1	0
Southbound	143	0	0	0	143	1	0
Eastbound	732	0	3	0	735	7	0
Westbound	792	0	1	0	793	8	2

==> Project AM Traffic is estimated to be less than 1% of Projected AM Peak 1 Hour Traffic Volume.

Project AM Traffic is estimated to be 1% or greater of Projected AM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

<u>PM PEAK PERIOD</u>							
Northbound	28	0	0	0	28	0	0
Southbound	60	0	0	0	60	1	0
Eastbound	998	0	3	0	1001	10	2
Westbound	626	0	6	0	632	6	0

==> Project PM Traffic is estimated to be less than 1% of Projected PM Peak 1 Hour Traffic Volume.

Project PM Traffic is estimated to be 1% or greater of Projected PM Peak 1 Hour Traffic Volume.
Intersection Capacity Utilization (ICU) Analysis is required.

PROJECT: Marina Park

FULL OCCUPANCY YEAR: 2011

APPENDIX D

COUNT DATA

TRAFFIC DATA SERVICES, INC.

LOCATION CODE 06806.C03

LOCATION - NEWPORT-BTN 32ND/31ST

VOLUMES FOR - TUESDAY 6/24/08

***** AM *****					***** PM *****										
TIME		NB	SB		TOTAL		TIME		NB	SB		TOTAL			

12:00 - 12:15		35		48	83		12:00 - 12:15		220		329	549			
12:15 - 12:30		47		35	82		12:15 - 12:30		291		350	641			
12:30 - 12:45		60		30	90		12:30 - 12:45		264		378	642			
12:45 - 1:00		44	186	32	145	76	331	12:45 - 1:00		254	1029	354	1411	608	2440
1:00 - 1:15		40		26	66		1:00 - 1:15		296		322	618			
1:15 - 1:30		34		20	54		1:15 - 1:30		282		290	572			
1:30 - 1:45		37		22	59		1:30 - 1:45		260		294	554			
1:45 - 2:00		23	134	16	84	39	218	1:45 - 2:00		288	1126	294	1200	582	2326
2:00 - 2:15		13		14	27		2:00 - 2:15		271		286	557			
2:15 - 2:30		11		14	25		2:15 - 2:30		253		280	533			
2:30 - 2:45		4		6	10		2:30 - 2:45		268		316	584			
2:45 - 3:00		6	34	9	43	15	77	2:45 - 3:00		304	1096	282	1164	586	2260
3:00 - 3:15		8		8	16		3:00 - 3:15		304		242	546			
3:15 - 3:30		6		4	10		3:15 - 3:30		290		261	551			
3:30 - 3:45		12		4	16		3:30 - 3:45		307		283	590			
3:45 - 4:00		9	35	10	26	19	61	3:45 - 4:00		284	1185	296	1082	580	2267
4:00 - 4:15		13		5	18		4:00 - 4:15		326		312	638			
4:15 - 4:30		11		8	19		4:15 - 4:30		320		312	632			
4:30 - 4:45		7		4	11		4:30 - 4:45		288		274	562			
4:45 - 5:00		17	48	28	45	45	93	4:45 - 5:00		262	1196	296	1194	558	2390
5:00 - 5:15		23		31	54		5:00 - 5:15		288		343	631			
5:15 - 5:30		22		45	67		5:15 - 5:30		238		304	542			
5:30 - 5:45		45		64	109		5:30 - 5:45		286		364	650			
5:45 - 6:00		47	137	66	206	113	343	5:45 - 6:00		290	1102	349	1360	639	2462
6:00 - 6:15		58		68	126		6:00 - 6:15		294		317	611			
6:15 - 6:30		86		92	178		6:15 - 6:30		246		366	612			
6:30 - 6:45		98		100	198		6:30 - 6:45		268		306	574			
6:45 - 7:00		118	360	124	384	242	744	6:45 - 7:00		266	1074	292	1281	558	2355
7:00 - 7:15		146		138	284		7:00 - 7:15		285		324	609			
7:15 - 7:30		184		138	322		7:15 - 7:30		256		288	544			
7:30 - 7:45		220		160	380		7:30 - 7:45		246		252	498			
7:45 - 8:00		188	738	205	641	393	1379	7:45 - 8:00		243	1030	272	1136	515	2166
8:00 - 8:15		213		195	408		8:00 - 8:15		238		206	444			
8:15 - 8:30		247		214	461		8:15 - 8:30		229		214	443			
8:30 - 8:45		247		256	503		8:30 - 8:45		209		186	395			
8:45 - 9:00		262	969	250	915	512	1884	8:45 - 9:00		216	892	186	792	402	1684
9:00 - 9:15		244		232	476		9:00 - 9:15		203		160	363			
9:15 - 9:30		201		196	397		9:15 - 9:30		208		168	376			
9:30 - 9:45		199		208	407		9:30 - 9:45		210		154	364			
9:45 - 10:00		229	873	250	886	479	1759	9:45 - 10:00		186	807	147	629	333	1436
10:00 - 10:15		200		254	454		10:00 - 10:15		166		151	317			
10:15 - 10:30		184		270	454		10:15 - 10:30		164		147	311			
10:30 - 10:45		204		258	462		10:30 - 10:45		145		98	243			
10:45 - 11:00		212	800	270	1052	482	1852	10:45 - 11:00		133	608	95	491	228	1099
11:00 - 11:15		200		308	508		11:00 - 11:15		116		78	194			
11:15 - 11:30		232		295	527		11:15 - 11:30		84		66	150			
11:30 - 11:45		246		345	591		11:30 - 11:45		73		62	135			
11:45 - 12:00		225	903	362	1310	587	2213	11:45 - 12:00		78	351	74	280	152	631

TOTALS		5,217		5,737		10,954				11,496		12,020		23,516	

ADT'S										16,713		17,757		34,470	

LOCATION - BALBOA-BTN 19TH/18TH

VOLUMES FOR - TUESDAY 6/24/08

***** AM *****					***** PM *****				
TIME	EB	WB	TOTAL		TIME	EB	WB	TOTAL	
12:00 - 12:15	34	25	59		12:00 - 12:15	294	236	530	
12:15 - 12:30	30	24	54		12:15 - 12:30	312	260	572	
12:30 - 12:45	26	42	68		12:30 - 12:45	320	208	528	
12:45 - 1:00	22 112	32 123	54	235	12:45 - 1:00	285 1211	245 949	530	2160
1:00 - 1:15	23	26	49		1:00 - 1:15	246	242	488	
1:15 - 1:30	14	15	29		1:15 - 1:30	234	228	462	
1:30 - 1:45	16	15	31		1:30 - 1:45	236	217	453	
1:45 - 2:00	17 70	14 70	31	140	1:45 - 2:00	242 958	224 911	466	1869
2:00 - 2:15	12	9	21		2:00 - 2:15	225	234	459	
2:15 - 2:30	10	6	16		2:15 - 2:30	260	220	480	
2:30 - 2:45	6	4	10		2:30 - 2:45	226	211	437	
2:45 - 3:00	8 36	5 24	13	60	2:45 - 3:00	205 916	252 917	457	1833
3:00 - 3:15	5	6	11		3:00 - 3:15	212	240	452	
3:15 - 3:30	5	4	9		3:15 - 3:30	252	241	493	
3:30 - 3:45	2	4	6		3:30 - 3:45	233	252	485	
3:45 - 4:00	5 17	4 18	9	35	3:45 - 4:00	254 951	236 969	490	1920
4:00 - 4:15	4	11	15		4:00 - 4:15	275	304	579	
4:15 - 4:30	3	10	13		4:15 - 4:30	218	262	480	
4:30 - 4:45	8	8	16		4:30 - 4:45	254	253	507	
4:45 - 5:00	23 38	14 43	37	81	4:45 - 5:00	224 971	228 1047	452	2018
5:00 - 5:15	20	23	43		5:00 - 5:15	288	242	530	
5:15 - 5:30	30	23	53		5:15 - 5:30	262	206	468	
5:30 - 5:45	36	39	75		5:30 - 5:45	266	218	484	
5:45 - 6:00	46 132	48 133	94	265	5:45 - 6:00	287 1103	264 930	551	2033
6:00 - 6:15	44	53	97		6:00 - 6:15	260	273	533	
6:15 - 6:30	54	73	127		6:15 - 6:30	274	187	461	
6:30 - 6:45	58	88	146		6:30 - 6:45	210	220	430	
6:45 - 7:00	83 239	102 316	185	555	6:45 - 7:00	232 976	187 867	419	1843
7:00 - 7:15	104	130	234		7:00 - 7:15	237	202	439	
7:15 - 7:30	102	150	252		7:15 - 7:30	223	190	413	
7:30 - 7:45	112	180	292		7:30 - 7:45	212	199	411	
7:45 - 8:00	160 478	178 638	338	1116	7:45 - 8:00	198 870	178 769	376	1639
8:00 - 8:15	154	194	348		8:00 - 8:15	148	152	300	
8:15 - 8:30	174	227	401		8:15 - 8:30	160	142	302	
8:30 - 8:45	204	234	438		8:30 - 8:45	130	140	270	
8:45 - 9:00	192 724	238 893	430	1617	8:45 - 9:00	140 578	150 584	290	1162
9:00 - 9:15	184	214	398		9:00 - 9:15	131	124	255	
9:15 - 9:30	166	175	341		9:15 - 9:30	129	132	261	
9:30 - 9:45	152	172	324		9:30 - 9:45	133	145	278	
9:45 - 10:00	208 710	196 757	404	1467	9:45 - 10:00	111 504	126 527	237	1031
10:00 - 10:15	202	164	366		10:00 - 10:15	108	102	210	
10:15 - 10:30	220	156	376		10:15 - 10:30	108	111	219	
10:30 - 10:45	196	177	373		10:30 - 10:45	81	96	177	
10:45 - 11:00	210 828	162 659	372	1487	10:45 - 11:00	85 382	84 393	169	775
11:00 - 11:15	233	184	417		11:00 - 11:15	56	55	111	
11:15 - 11:30	260	189	449		11:15 - 11:30	52	44	96	
11:30 - 11:45	286	212	498		11:30 - 11:45	38	41	79	
11:45 - 12:00	294 1073	172 757	466	1830	11:45 - 12:00	52 198	42 182	94	380

TOTALS	4,457	4,431	8,888			9,618	9,045	18,663	

ADT'S

14,075

13,476

27,551

LOCATION - NEWPORT-BTN 32ND/31ST

AVERAGED VOLUMES FOR - TUESDAY 6/3/08 TO WEDNESDAY 6/4/08

***** AM *****						***** PM *****					
TIME	NB	SB	TOTAL			TIME	NB	SB	TOTAL		
12:00 - 12:15	44	46	90			12:00 - 12:15	210	276	486		
12:15 - 12:30	54	35	89			12:15 - 12:30	202	286	488		
12:30 - 12:45	39	38	77			12:30 - 12:45	222	272	494		
12:45 - 1:00	37	174	25	144	62 318	12:45 - 1:00	240	874	290 1124	530 1998	
1:00 - 1:15	40	22	62			1:00 - 1:15	212	238	450		
1:15 - 1:30	30	15	45			1:15 - 1:30	266	242	508		
1:30 - 1:45	33	23	56			1:30 - 1:45	202	240	442		
1:45 - 2:00	22	125	16	76	38 201	1:45 - 2:00	224	904	256 976	480 1880	
2:00 - 2:15	24	18	42			2:00 - 2:15	208	232	440		
2:15 - 2:30	12	11	23			2:15 - 2:30	226	255	481		
2:30 - 2:45	0	4	4			2:30 - 2:45	226	216	442		
2:45 - 3:00	11	47	9	42	20 89	2:45 - 3:00	240	900	255 958	495 1858	
3:00 - 3:15	11	5	16			3:00 - 3:15	227	237	464		
3:15 - 3:30	8	6	14			3:15 - 3:30	196	245	441		
3:30 - 3:45	6	3	9			3:30 - 3:45	232	270	502		
3:45 - 4:00	5	30	5	19	10 49	3:45 - 4:00	236	891	244 996	480 1887	
4:00 - 4:15	6	4	10			4:00 - 4:15	241	238	479		
4:15 - 4:30	8	2	10			4:15 - 4:30	229	256	485		
4:30 - 4:45	9	12	21			4:30 - 4:45	216	264	480		
4:45 - 5:00	14	37	11	29	25 66	4:45 - 5:00	212	898	290 1048	502 1946	
5:00 - 5:15	24	14	38			5:00 - 5:15	228	300	528		
5:15 - 5:30	24	28	52			5:15 - 5:30	244	306	550		
5:30 - 5:45	29	36	65			5:30 - 5:45	236	329	565		
5:45 - 6:00	40	117	44	122	84 239	5:45 - 6:00	191	899	342 1277	533 2176	
6:00 - 6:15	77	62	139			6:00 - 6:15	215	341	556		
6:15 - 6:30	88	82	170			6:15 - 6:30	200	344	544		
6:30 - 6:45	109	98	207			6:30 - 6:45	236	320	556		
6:45 - 7:00	148	422	118	360	266 782	6:45 - 7:00	214	865	312 1317	526 2182	
7:00 - 7:15	182	150	332			7:00 - 7:15	221	306	527		
7:15 - 7:30	171	144	315			7:15 - 7:30	224	234	458		
7:30 - 7:45	247	156	403			7:30 - 7:45	208	249	457		
7:45 - 8:00	240	840	203	653	443 1493	7:45 - 8:00	200	853	192 981	392 1834	
8:00 - 8:15	235	186	421			8:00 - 8:15	212	192	404		
8:15 - 8:30	232	174	406			8:15 - 8:30	180	198	378		
8:30 - 8:45	223	179	402			8:30 - 8:45	202	195	397		
8:45 - 9:00	197	887	190	729	387 1616	8:45 - 9:00	204	798	170 755	374 1553	
9:00 - 9:15	185	179	364			9:00 - 9:15	188	144	332		
9:15 - 9:30	174	202	376			9:15 - 9:30	220	156	376		
9:30 - 9:45	185	212	397			9:30 - 9:45	136	119	255		
9:45 - 10:00	196	740	220	813	416 1553	9:45 - 10:00	133	677	116 535	249 1212	
10:00 - 10:15	200	214	414			10:00 - 10:15	150	112	262		
10:15 - 10:30	197	183	380			10:15 - 10:30	114	114	228		
10:30 - 10:45	190	174	364			10:30 - 10:45	108	84	192		
10:45 - 11:00	208	795	254	825	462 1620	10:45 - 11:00	82	454	90 400	172 854	
11:00 - 11:15	183	215	398			11:00 - 11:15	82	70	152		
11:15 - 11:30	194	202	396			11:15 - 11:30	81	57	138		
11:30 - 11:45	228	234	462			11:30 - 11:45	75	54	129		
11:45 - 12:00	197	802	268	919	465 1721	11:45 - 12:00	56	294	42 223	98 517	
TOTALS	5,016	4,731	9,747				9,307	10,590	19,897		
ADT'S							14,323	15,321	29,644		

LOCATION - BALBOA-BTN 19TH/18TH

AVERAGED VOLUMES FOR - TUESDAY 6/3/08 TO WEDNESDAY 6/4/08

***** AM *****				***** PM *****			
TIME	EB	WB	TOTAL	TIME	EB	WB	TOTAL
12:00 - 12:15	37	26	63	12:00 - 12:15	194	175	369
12:15 - 12:30	28	26	54	12:15 - 12:30	180	158	338
12:30 - 12:45	32	22	54	12:30 - 12:45	174	152	326
12:45 - 1:00	23	19	42	12:45 - 1:00	242	196	438
	120	93	213		790	681	1471
1:00 - 1:15	18	19	37	1:00 - 1:15	151	138	289
1:15 - 1:30	19	16	35	1:15 - 1:30	190	216	406
1:30 - 1:45	21	16	37	1:30 - 1:45	188	156	344
1:45 - 2:00	13	9	22	1:45 - 2:00	198	172	370
	71	60	131		727	682	1409
2:00 - 2:15	12	10	22	2:00 - 2:15	184	163	347
2:15 - 2:30	12	14	26	2:15 - 2:30	189	182	371
2:30 - 2:45	5	5	10	2:30 - 2:45	223	192	415
2:45 - 3:00	9	5	14	2:45 - 3:00	199	206	405
	38	34	72		795	743	1538
3:00 - 3:15	3	5	8	3:00 - 3:15	193	163	356
3:15 - 3:30	8	7	15	3:15 - 3:30	184	165	349
3:30 - 3:45	2	5	7	3:30 - 3:45	206	214	420
3:45 - 4:00	3	5	8	3:45 - 4:00	181	210	391
	16	22	38		764	752	1516
4:00 - 4:15	3	5	8	4:00 - 4:15	218	185	403
4:15 - 4:30	3	5	8	4:15 - 4:30	198	198	396
4:30 - 4:45	4	9	13	4:30 - 4:45	208	182	390
4:45 - 5:00	5	10	15	4:45 - 5:00	211	166	377
	15	29	44		835	731	1566
5:00 - 5:15	9	21	30	5:00 - 5:15	220	172	392
5:15 - 5:30	18	26	44	5:15 - 5:30	216	220	436
5:30 - 5:45	22	30	52	5:30 - 5:45	256	189	445
5:45 - 6:00	33	34	67	5:45 - 6:00	286	148	434
	82	111	193		978	729	1707
6:00 - 6:15	41	77	118	6:00 - 6:15	268	178	446
6:15 - 6:30	43	70	113	6:15 - 6:30	254	179	433
6:30 - 6:45	58	83	141	6:30 - 6:45	292	162	454
6:45 - 7:00	81	132	213	6:45 - 7:00	226	168	394
	223	362	585		1040	687	1727
7:00 - 7:15	106	156	262	7:00 - 7:15	236	159	395
7:15 - 7:30	122	162	284	7:15 - 7:30	208	177	385
7:30 - 7:45	108	207	315	7:30 - 7:45	180	148	328
7:45 - 8:00	224	257	481	7:45 - 8:00	163	148	311
	560	782	1342		787	632	1419
8:00 - 8:15	179	254	433	8:00 - 8:15	146	148	294
8:15 - 8:30	114	200	314	8:15 - 8:30	140	144	284
8:30 - 8:45	117	226	343	8:30 - 8:45	142	134	276
8:45 - 9:00	140	166	306	8:45 - 9:00	130	137	267
	550	846	1396		558	563	1121
9:00 - 9:15	138	154	292	9:00 - 9:15	118	116	234
9:15 - 9:30	138	170	308	9:15 - 9:30	135	169	304
9:30 - 9:45	153	159	312	9:30 - 9:45	92	78	170
9:45 - 10:00	161	171	332	9:45 - 10:00	81	74	155
	590	654	1244		426	437	863
10:00 - 10:15	160	148	308	10:00 - 10:15	92	100	192
10:15 - 10:30	132	154	286	10:15 - 10:30	93	66	159
10:30 - 10:45	132	162	294	10:30 - 10:45	62	68	130
10:45 - 11:00	158	196	354	10:45 - 11:00	61	52	113
	582	660	1242		308	286	594
11:00 - 11:15	182	158	340	11:00 - 11:15	55	58	113
11:15 - 11:30	164	150	314	11:15 - 11:30	56	54	110
11:30 - 11:45	168	210	378	11:30 - 11:45	33	44	77
11:45 - 12:00	178	165	343	11:45 - 12:00	40	28	68
	692	683	1375		184	184	368
TOTALS	3,539	4,336	7,875		8,192	7,107	15,299
ADT'S					11,731	11,443	23,174

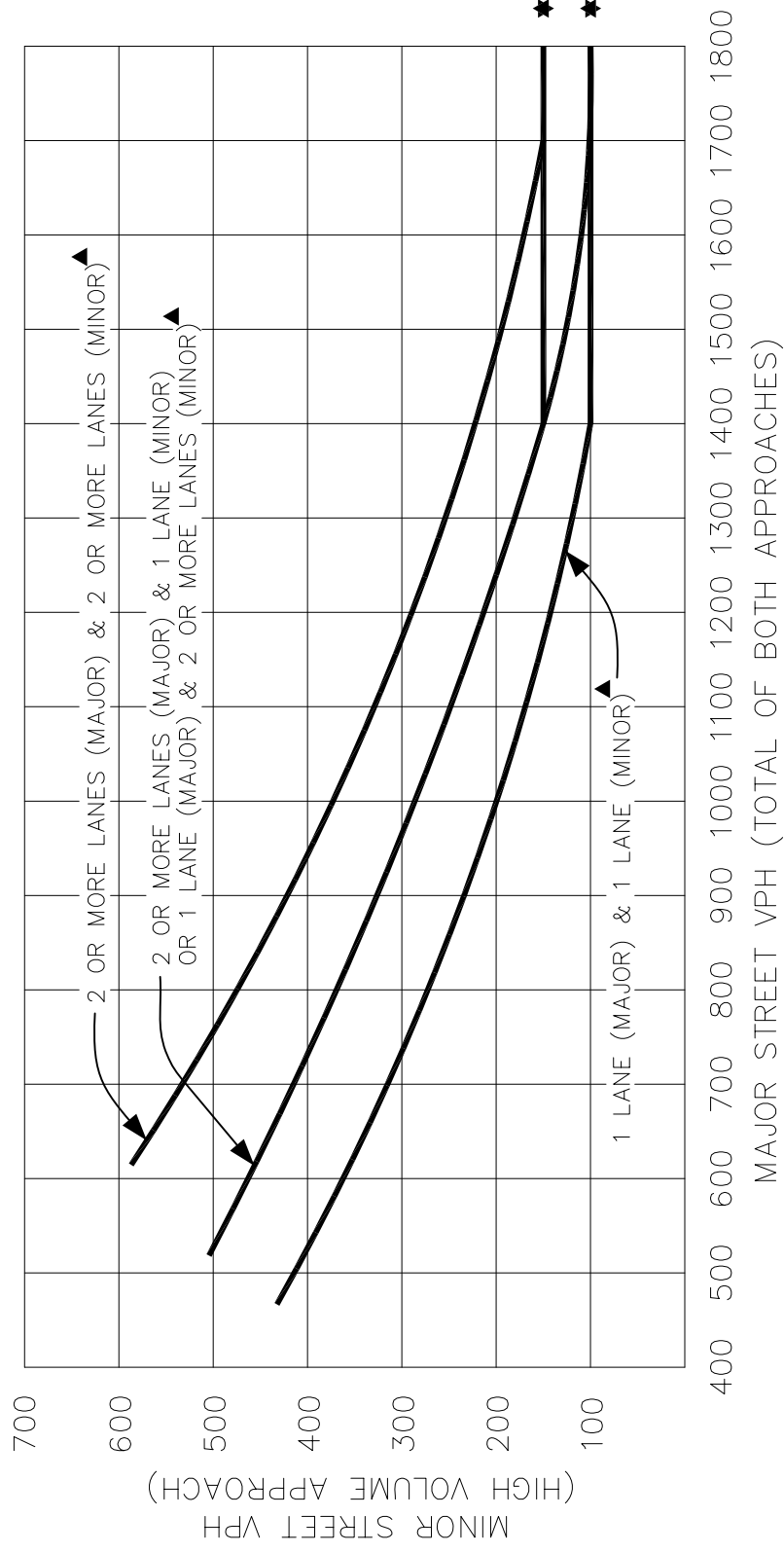
APPENDIX E

DEFINITIONS

Certain terms used throughout this report are defined below to clarify their intended meaning:

ADT	Average Daily Traffic. Generally used to measure the total two-directional traffic volumes passing a given point on a roadway.
DU	Dwelling Unit. Used in quantifying residential land use.
ICU	Intersection Capacity Utilization. A measure of the volume to capacity ratio for an intersection. Typically used to determine the peak hour level of service for a given set of intersection volumes.
LOS	Level of Service. A scale used to evaluate circulation system performance based on intersection ICU values or volume/capacity ratios of arterial segments.
Peak Hour	This refers to the hour during the AM peak period (typically 7 AM - 9 AM) or the PM peak period (typically 3 PM - 6 PM) in which the greatest number of vehicle trips are generated by a given land use or are traveling on a given roadway.
TSF	Thousand Square Feet. Used in quantifying non-residential land uses, and refers to building floor area.
V/C	Volume to Capacity Ratio. This is typically used to describe the percentage of capacity utilized by existing or projected traffic on a segment of an arterial or intersection.
VPH	Vehicles Per Hour. Used for roadway volumes (counts or forecasts) and trip generation estimates. Measures the number of vehicles in a one hour period, typically the AM or PM peak hour.

APPENDIX F
PEAK HOUR SIGNAL WARRANT



- ▲ NOTE: THESE CURVES ARE RECOMMENDED FOR USE IN AREAS OF URBAN CLASSIFICATION (i.e. POSTED SPEED LIMIT ON THE MAJOR STREET IS 64 km/hr or 35 MPH OR LESS).
- ★ NOTE: 150 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES, AND 100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH ONE LANE.

Source: MUTCD – Figure 4C-3

Figure F-1

PEAK HOUR SIGNAL WARRANT

K.2 - PARKING MANAGEMENT PLAN



WALKER
PARKING CONSULTANTS

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Fax: 818.953.9331
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October 24, 2008

Anthony Brine, P.E., Principal Civil Engineer
City of Newport Beach
3300 Newport Boulevard
Newport Beach, CA 92663

Re: *Parking Management Recommendations – Marina Park Project (revised)*
Newport Beach, California

Dear Mr. Brine,

Walker Parking Consultants is pleased to present this letter report covering the parking management alternatives for the Marina Park project on Balboa Peninsula.

SUMMARY

In discussing parking management issues with other community centers and sailing facilities in Southern California we have determined that parking management issues at similar facilities present unique and distinct challenges. We also determined that parking capacity issues at Marina Park are likely to occur during peak summer weekends, indicating that a permanent, year-round solution may not be the most efficient solution for this area. Rather, flexible solutions that can be modified and managed rapidly may be the best way to ensure efficient and available parking. From discussions with City staff, we understand that enforcement beyond 8:00 AM to 6:00 PM may be difficult to attain. Nonetheless, our recommendations sometimes include extending the hours of enforcement, when appropriate, for efficient operation. With this in mind, we recommend that the City develop the following initiatives to help manage parking at Marina Park:

1. Charge a fee for parking to help turn over the spaces and ensure the lot is available for beach goers and Marina Park patrons.
2. Parking fees should be enforced 24 hours per day to help manage overnight parking by residents that may otherwise interfere with access to the Marina Park community center.
3. Install multi-space meters at the lot to enable automatic payment for all spaces in all lots to efficiently manage the payment system.
4. Install flip signs to quickly, inexpensively and efficiently reserve spaces during events at the community center, Girl Scout House, marina, and sailing center.

In general, parking in Balboa Peninsula is impacted during the summer weekends from June to September. The peak demand period begins in the early afternoon and does not subside until nearly sunset. If events at Marina Park do not coincide with these peak demand periods, parking can be managed with simple economic cues. During peak summer periods, events should be scheduled either early in the morning (e.g. beginning at 8:00AM) or later in the evening to avoid the impact from the beach visitors.

PROJECT DESCRIPTION

The City of Newport Beach is creating a new plan for Marina Park that includes a community center, sailing center, and marina. The site is located between 15th Street and 18th Street along the bay side of the Newport Peninsula and currently includes various recreational uses and approximately 60 mobile homes. The proposed plan for the site consists of a 10,200 square foot community center, an 11,200 square foot sailing center and café, a recreational park, and a 28-berth visitor marina. The Girl Scout House will also be relocated from its current location to the northwest corner of the project site. The recreational amenities at the park will include a playground, tennis courts, basketball courts, beach volleyball courts, and open park areas. In addition, docks and slips for sailing programs and improved beach access will be provided. Figure 1 outlines the proposed location of the Marina Park development.

Figure 1: Project Study Area



Source: Google Earth Pro, Accessed September 24, 2008.

Figure 2 shows the proposed project site plan and related parking areas.

Figure 2: Project Site Plan



Source: City of Newport Beach, September 2008.

PROJECT BACKGROUND

Access to Marina Park will be critical to the success of the development. A parking study examining the myriad uses was conducted by Austin-Foust in July 2008. Our understanding is that the City is satisfied with the projections from the Austin-Foust report; therefore, we have not studied the parking generation for this project.

Our understanding is that parking at the Marina Park project is being developed to ensure that patrons and visitors using the facilities at Marina Park have appropriate parking and access to those facilities. During the summer months, parking will likely be problematic because as the Newport Peninsula beach lots and nearby on-street parking becomes unavailable many beach goers will likely park in any nearby space. With over 150 spaces in the main lot and the nearby "Girl Scout" lot, the Marina Park complex (Marina Park) will likely be used by beach visitors or other excursionists on the central part of the Peninsula. If the price for parking at Marina Park is attractive, beach goers and nearby residents will immediately fill the lot, leaving the Marina Park users unable to park anywhere near their intended destination. If beach goers and residents have a greater willingness to pay than Marina Park patrons then the Marina Park parking lot will be unavailable to Marina Park patrons throughout much of the summer, and particularly during the weekends. Our belief is that demand for parking on Newport Peninsula is nearly unlimited during the busy summer season. If supply is continually developed and subsidized, effectively removing economic considerations, parking will continue to be a problem throughout Newport Beach and near the Marina Park area specifically.

PARKING MANAGEMENT

In our earlier discussion and analyses we referred to many of the elements of parking management. Parking Management includes myriad strategies aimed at making better use of the available parking supply in any defined area. Proper parking management incorporates a number of goals, but a core principle is that parking spaces should be used efficiently. Parking spaces that sit unoccupied are inefficient as they represent significant financial and land resources, as well as the opportunity costs of the funds and real estate, that is not devoted to productive uses. This is especially true in a desirable place such as Newport Beach. It is also true where competition for impacted parking spaces exists a short distance away. The time and frustration that results from the search for a convenient space in these impacted areas represents inefficiencies.

Parking management practices attempt to address inefficiencies through restrictions and parking pricing. We aim to allocate parking spaces for which there is high demand with user restrictions and/or prices to park. For spaces for which there is low demand, we relax parking restrictions and lower prices in order to maximize their utilization. In high demand area we recommend increased prices, strict enforcement, and greater turnover of the parking spaces.

If spaces in high demand are free and/or spaces in low demand are priced, inefficiencies are created. We note that parking spaces are a finite resource and represent a real cost. We wish to allocate that resource as efficiently as possible. Finally, although not always politically popular, pricing is virtually always the most effective way to manage parking spaces.

ALTERNATIVES

This report is focused on managing the future parking at the Marina Park development. In an effort to conform to the likely requirements of the California Coastal Commission, our recommendations try to support equal access to all visitors and patrons of Marina Park as well as the beach going public. This is particularly important during the summer months from June to September. As we have observed from other parking studies conducted in the area, parking during weekend days throughout the summer will be nearly impossible to manage due to the significant demand and presumed willingness of infrequent beach goers to pay for parking during their excursion to the Newport beaches. To mitigate demand and help manage the parking, we have come up with several alternatives for the City to consider. The following is a list outlining the possible parking management strategies to help prioritize parking at Marina Park.

1. *Install automated multi-space meters.* In an area that has virtually unlimited demand for parking and a commensurate shortage of land, one of the few solutions to help manage parking is to allocate the spaces to those who are most willing to pay. That is, we recommend installing parking meters. This may seem inherently unfair, or regressive; however, it helps alleviate parking in the less expensive, less desirable areas by removing vehicles that are willing to pay a premium for a space from the on-street spaces they would otherwise occupy. Given the size and circulation of the parking lots at Marina Park, we believe that multi-space pay-and-display meters will be the best solution, used in conjunction with any other combination of parking management that we outline in this report. To ensure optimal efficiency, pricing in the lot should be marginally higher than nearby on-street parking meter fees.
2. *Charge for overnight parking.* To help ensure that residents or businesses do not over utilize the Marina Park parking lot, we recommend that a paid parking system be in operation at all times. This will ensure that there are no cars occupying the lot that are not there for a specific event or purpose. This will help ensure the lot does not become a long-term storage area for vehicles. If the lot is open, and free to residents overnight, having the lot available for morning classes or sailing lessons will be difficult to achieve.
3. *Do not accept master park permits.* Another measure that should be included in the plan is that the Marina Park lot should not accept Newport Beach master park permits, blue pole permits or any other exempt parking permit that is accepted in other areas of the City. Again, this will help ensure that the Marina Park lot is available for Marina Park patrons, visitors and guests.



These first three recommendations will help ensure that the lot is primarily utilized by day visitors to Marina Park and not by long-term excursionists to other destinations or by residents seeking inexpensive and convenient parking. The alternatives below may help supplement these solutions by segmenting parking at Marina Park. It should be noted that these alternatives are more nuanced than the first three recommendations and have additional limitations that should be considered by the City.

BEST OPTIONS—THOUGH NOT LIKELY TO BE APPROVED BY COASTAL COMMISSION


4. *Marina Park Only Parking.* The most obvious solution to achieve the City's goal of ensuring the Marina Park lot is only used by its intended patrons is to restrict Marina Park parking to only the patrons, visitors and guests of the Marina, Sailing Center, Girl Scout Center, Community Center or Park. Of course this would be extremely difficult to enforce because it would not be readily apparent which vehicles were using the Marina Park facilities and which vehicles were using the beach or other nearby land uses. Permits could be used for community center visitors, or other registered users, but issuing permits for park users would be difficult to identify and control. In addition, we do not feel that this solution would be agreeable with the Coastal Commission's stated goal of ensuring equal access to ALL beach visitors.
5. *Validation.* If there is a pricing mechanism for the Marina Park lot, all patrons, visitors, users, and guests could receive a validation sticker to off-set or eliminate their cost to park in the lot. If pricing at the Marina Park lots is significantly higher than the surrounding spaces, it is likely to discourage all but the most price-insensitive patrons to park elsewhere. Of course, this again means that the lot will be underutilized except when there is an event at Marina Park. From our experience it is unlikely that the Coastal Commission will agree to this sort of validation system since it creates a preferential parking system that limits or restricts public access to the nearby beaches.
6. *Reverse Validation.* If the price to park at the Marina Park lot was twice as high as nearby on-street or surface lot users of Marina Park facilities could be offered a rebate on their parking fees for whichever activity they are pursuing at Marina Park (reverse validation). Rather than validate parking (offsetting the price of parking) the user could pay the same price for parking as other users (beach visitors, residents and others seeking parking) but bring their parking receipt into the Marina Park offices to receive a discount on their sailing lesson, community center activity, or moorage fee. This system could be a bit confusing to infrequent users and may not be readily accepted by many Marina Park patrons, visitors, or guests. While technically everyone would pay the same fee for parking, the Coastal Commission may not approve such a minor technicality. As a result of these uncertainties, this may not be the most desirable solution.

OTHER OPTIONS – NOT RECOMMENDED

7. *Pricing.* If the Marina Park lot is priced significantly higher than nearby beach lots and on-street spaces it is likely that the lot will fill up only after all other areas spaces fill. This strategy may help ensure that Marina Park has as much availability as possible for as much time as possible. One drawback to this strategy is that during peak demand periods this lot will eventually fill up and Marina Park patrons will not have access. Another problem is that the lot will be significantly underutilized throughout the remainder of the year, as neither beach visitors, residents, nor Marina Park patrons will want to park in the most expensive spaces except during high demand days or during busy events. A market-rate pricing scheme that adjusts prices based on demand (occupancy) is recommended.

8. *Create priority areas for the Marina Park users.* Another option is to create a parking system that sets aside (either with nesting gates or chains) a certain number of spaces for visitors that have Marina Park reservations for daily activities. As classes, events, or other reservations are made for the Marina Park users, parking could be paid in advance, along with their other fees, this helps ensure the Marina Park user that they will have a parking space when they come to Marina Park. This option would be fairly labor intensive because it would likely require that spaces be set aside in advance of any classes or events at the center and would essentially reduce the total number of available parking spaces for much of the day. A parking attendant would be recommended to ensure that parking is appropriately assigned. This sort of inefficiency is not desirable from a parking management perspective and would not likely be approved by the Coastal Commission.

RECOMMENDED OPTIONS

9. *Install flip signs.* Rather than create "Marina Park Parking Only" areas, a sign that changes dependant upon the expected amount of daily visitors can be installed. We often call these "flip signs" since they can flip open to display a message or flip closed to display a different message (or no message). Flip signs can be installed in some or all of the spaces (including near the Girl Scout Center) at Marina Park. When the facility has an event during the peak season, the signs can display a "Reserved For Marina Park Visitors Only" (or "Reserved for Girl Scout House") sign. When there is no event, the sign can be flipped closed; opening the space to all visitors or guests to the area. Event reservations can be used to help determine the appropriate number of spaces to reserve.
- 
- Source: emedco.com
10. *Increase bicycle/pedestrian facilities.* Demand for parking can be reduced by providing bicycle and pedestrian facilities and amenities that make it easier and more pleasant to bicycle or walk to nearby destinations. This strategy could prove to be particularly valuable for a community center in an area like Balboa Peninsula. Some cities have also begun experimenting with bike stations or full-service bike lockers near destinations that provide lockers, changing rooms and showers for bicycle commuters. Bikestation services include secure, indoor bicycle parking available to members with a membership pass. In the Seattle Bikestation there is free attended bicycle parking during operating hours. Bicycle repair services and commuter retail items are also available at this facility, as well as public transportation schedules, bike maps, and a personalized service matching new bicycle commuters with experienced cyclists who can help them plan a commute route, provide tips on bicycle commuting, and generally serve as mentors.¹

Bikestations are currently in use in several California cities including Long Beach, Palo Alto, and San Francisco.

¹ Metro King County Government, <http://transit.metrokc.gov/tops/bike/bikestation.html>, accessed September 29, 2008.



RECOMMENDATIONS

The goal of this report is to provide the City with parking management solutions that will likely help provide the appropriate amount of access to Marina Park without restricting beach goers from parking at the area lots. We believe that a combination of solutions will be the most effective approach to achieving this goal. Namely, we believe that paid parking will be essential to help manage this facility. A multi-space, pay-and-display system that operates 24-hours per day will likely be the most efficient solution to help manage the parking. In addition, a fee that is slightly higher than the nearby on-street spaces will likely ensure that the Marina Park lots are the last to be occupied during busy summer peak demand periods. Flip signs that alternate between "Reserved For Marina Park Visitors Only" and "Parking Available" should be installed to help manage parking during events at Marina Park. To accomplish this, the Marina Park lots can estimate the number of users for any event, and flip open the "Reserved Parking" side of the sign to help ensure that Marina Park patrons have access to the facility. At all other times, the signs can be flipped closed, or display a "Parking Available" message to enable all vehicles on the Peninsula to use the parking facility. Finally, while not necessarily a parking management technique, demand for parking in general could be reduced at Marina Park by providing ample bicycle and pedestrian access and facilities.

If you have any questions regarding our report, please do not hesitate to contact us.

Sincerely,

Mark Linsenmayer
WALKER PARKING CONSULTANTS

cc: Steffen Turoff
Rosalinh Ung

